The Tower:
Transformation of a Precedent

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Submitted in Partial Fulfillment of the requirements for the Degree of
Master of Architecture at the Massachusetts Institute of Technology
June 1982

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ABSTRACT

The link between the study of what one sees around him and the use of that stored information is an important part of the design process. That information includes a sundry of historical facts which are presented in the course of a formal architectural education. In developing a working methodology, I have consistently found myself recalling organization characteristics and forms which have been presented in various architectural courses, as well as those which are a part of the daily observations made of my immediate environment.

In order to examine the actual use process of information stored, I have chosen to study a particular form found in architecture, and based on that study, the design of a group of houses. The tower form has been studied, and used, along with the forms which are commonly found in conjunction with it, (the medievel walled city, the town square, the loggia) in the conceptualization of a scheme for a cluster of eight houses. Both the historical analysis and the actual design are the means which aid in the discussion of a particular design process--the process of transforming a precedent for use in a new design.

Thesis Supervisor: Fernando Domeyko
Title: Associate Professor of Architecture

Thanks

To my family:
for many years of support, understanding and love.

To Jim:
for his concern and kindness.

Thanks also to my advisor Fernando Domeyko and to A+B+S Group of Washington, D.C. for their help with this project.

Introduction

The study of past accomplishments has been an aid to every designer who has spent the time necessary in order to understand the implications of preceding work. Students have analyzed the history and theory of architecture for years, but have become more and more confused about its possible applications to contemporary design. As architecture was freed from the rigid rules, which were formulated from the most ancient and often unrelated sources, designers were given the responsibility to retain the beauty, balance and proportion of the master works within the context of completely transformed building and design techniques.

Although their first inclination was that of rejection of old to create a "Modern" architecture, architects have been recently looking back in order to extract what is valuable from the work of the past. This "Post Modern" trend may be more intellectually founded, but it does not entirely differ from the "Neo-" architectural qualities which can be incorporated in present design solutions. It is the objective to extract only those principles and forms applicable to todays building needs along with those factors which are their support.

One design method often facilitated by architects is the use of a specific precedent. The precedent may be a building type which has some relationship to the current problem or it may be a specific architectural component or form. Each type incorporates qualities of the other since a building type is described

by a collection of components in a certain structure and those individual components can not usually be isolated from their respective structure.

architectural precedents are sometimes directly translated from a historical setting to that of a setting one one which is quite different. In an attempt to perserve the spirit and beauty of the past, "Neo-Classical" and "Neo-Gothic" architects did what was almost an exact translation of the forms and qualities they desired. Many forms, though not fully understood, were used with only a change in scale and context. The buildings which resulted sometimes contained beautiful aspects, often however, function was compromised for what was thought to be correct form.

Precedents which are used in a thematic sense and undergo a complete transformation process, may result in more adapted use, though it is more likely that they lose the very qualities they were chosen for. Forms or building qualities which share common site conditions, purpose, desired atmosphere, material or other point of reference, may be extracted from their original context and transformed; that is stripped of all unrelated aspects and used in a totally different context. The architecture resulting from this transformation/translation process may be very unlike that of the precedent, however, the precedent was useful, if for no more obvious reason than as an inspiration. Hints of structure, systems of light and privacies may be incorporated in a thematically inspired design.

This thesis was designed in order to study the indirect or thematic use of a specific form. It is essentially a study of one design process and its resulting architecture.

The difficulty in referring to a historical precedent in design comes in making tha actual link or jump between the understanding of history and its use in a new design problem. Subsequently, the degree to which the precedent affects the design can vary as widely as the

strength of that link varies.

A precedent used metaphorically is referred to at every level of design decision. It is the deciding factor in weighing viable alternatives as well as the formal inspiration for the basic geometries which are descriptive of the building. Perhaps a less intensive reliance on a historical precedent will result in architecture which is more responsive to a current situation. However, an Architecture which responds will to its environmental, use, and symbolic needs, can certainly be a valuable reference for design problesm which are situated in related conditions. The use of references in a thematic way may invite the designer to be open to a lighter and freer approach to a problem. This attitude is sometimes an aid to inventiveness.

Because site and use conditions, as well as sociological situations, are never exactly repeated, any precedent chosen as a design aid must be transformed in order to be useful in a new design context. It is that transformation process which will be the centering theme of this exercise. Useful sizes, environmental considerations, methods of handling a specific site condition and elements which afford a desirable spirit, will be isolated, along with forms and factors they are dependent on, for use in the design of housing in a medium density situation on an extremely steep site.

The choice of the tower form as a precedent was made based on my own interest in the form and its possible adaption to single family housing as well as the various qualities which make the tower or turret form useful to the design of housing on the site chosen. The site selected for this exercise is very steeply graded and oriented toward the north. There are environmental advantages as well as aesthetic advantages

from a standpoint of gaining maximum view and sunlight which make the tower a worthwhile model.

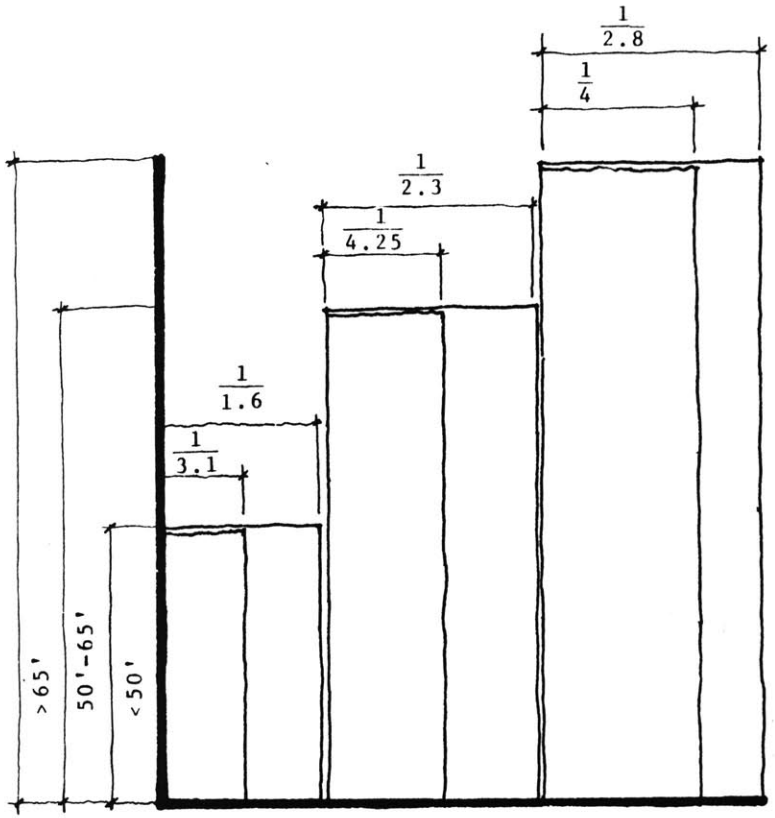
Tower forms can be found in a wide variety of use situations including residential ones. This was an important factor in my decision making since it suggested the versatality of the form within the housing frame of reference. Beyond tower use for a specific site and building type desired, there were considerations which pointed to its symbolic possibilities. As well as fulfilling functional and aesthetic needs, architecture has the opportunity to portray some intellectual depth. The symbolic meaning or "story" that architecture can portray can enhance its character and inventiveness, thereby rendering the design process as well as the architectural result a more stimulating experience.

To select and isolate a form and somehow translate it to fulfill a new need, neglects the fact that no form nor idea can stand alone. It is, of course, possible to extract, along with the model form, those elements and occurrences upon which the form depends. In addition, therefore, to isolating the tower form we use in a 20th century housing cluster, it is important to analyze occurrences and forms without which the tower can not stand. These related factors will be an important part of the tower definition I put into use as a design attitude.

Analysis
Towers
Tower Types and Relationships

The tower can be most basically defined as a vertical element. Its verticality may be referenced to horizontal elements of the same building, to other buildings or to the horizon line. Though towers have as many variances in architectural qualities as they have use types, most can be described as having three parts. A tower which grows from the ground and reaches toward the sky has a base, midsection and top. In terms of church towers, these would be the portico, bell ringing chamber and actual belfry. The three parts may, or may not be distinguishable from the exterior.

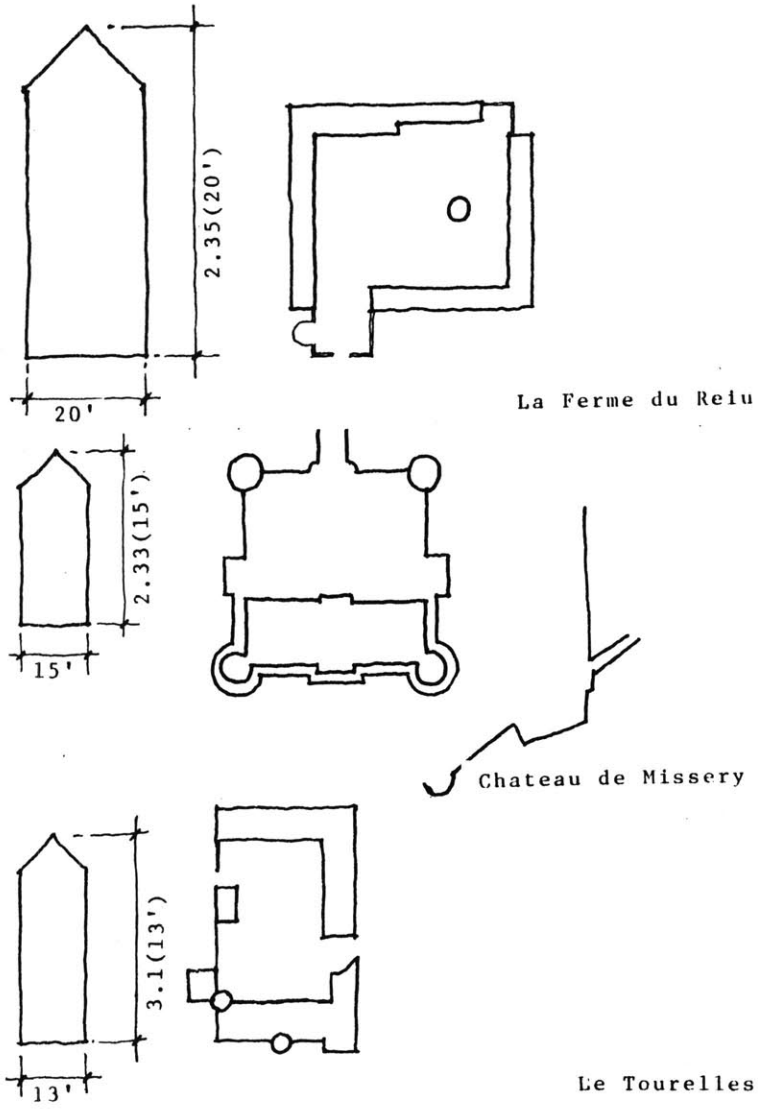
Most towers seem to very effective-



1

ANGLO-SAXON TOWER PROPORTIONS

[1] E. A. Fisher, Anglo-Saxon Towers, An Architectural and Historical Study (Great Britain: David & Charles Limited, 1969), p. 87.



2

FRENCH CHATEAU TOWER PROPORTIONS

[2]Harold D. Eberlein and Rojer W. Ramsdell, Small Manor Houses and Farmstead in France (Philadelphia, PA: J. B. Lippincott Co., 1926), pp. 128, 140, 238.

[3]Fisher, p. 88.

ly support the functions or happenings they were designed for either by marking or creating a sense of place. There is a strong relationship between the form qualities of towers and the occurences which are at home in their presence.[3] The tower has the capacity to create several unusual and difficult to achieve spatial qualities. It is one of the only architectural forms which allows a completely private place to be filled with light. The tower provides one the opportunity to be aware of what goes on around him without involving himself in it. A lantern tower can create a special place below it utilizing nothing other than the brightness of sunlight.

Some towers define several spatial characteristics and have several uses. The tower of a Medieval city functions for defense related purposes as well as it functions as a lookout onto city happenings. The irregular design of the towers of the Alhambra, in Spain, also

suggests a symbolic purpose. The towers may have been a formal method of separating aristocratic and royal area from that of the peasants.[4] The lantern tower of a church sits at the crossing and creates a sense of place both within and outside the church. The light allowed in, through the tower, is symbolic of a religious gathering whereas the same tower symbolizes a secular gathering place in the square commonly connected with the church.

Tower forms vary greatly in order to fulfill their symbolic and functional purposes. Those towers which were meant to meet defensive needs must have a strong relation to the ground. The Medieval city boasts towers which continue the ground level fortification of defensive walls. Towers which are designed for the pleasure the form can lend, such as cupolas and turrets, may have no physical relation with the ground and may be very transparent in nature. Even the fortified castle is denser at the ground level and more frivolous as it rises.

In order to take full advantage of the tower form in my design, I have adopted a loose working definition. I have assumed that any vertical element may be considered a tower. I have required, however, enough space about the form to make it visible from below by providing a point to look down from. This allows trees, (in fairly loose planting pattern) stairs, windmills, silos etc... to be realized as towers.

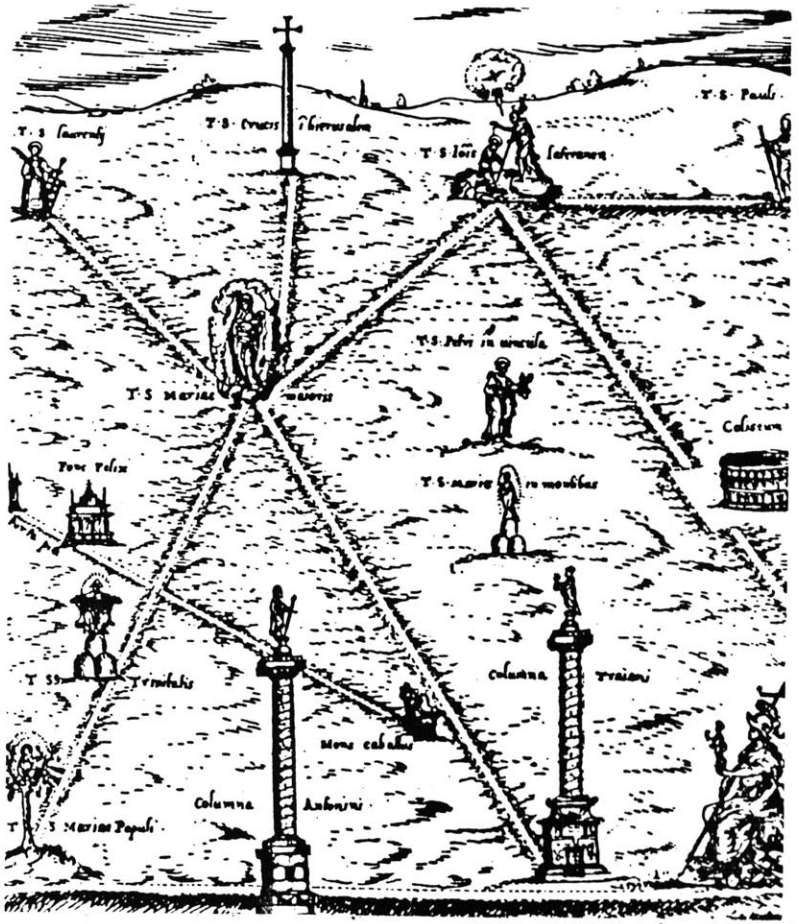
For ease in catagorizing and analyzing information collected on tower forms, in a manner which is useful in their incorporation into design, I will consider two types of tower design; 1) those towers whose placement has been formally, or

[4] Oleg Grabar, The Alhambra (Cambridge, MA: Harvard University Press, 1978), p.42

geometrically determined, and 2) those towers whose placement has been informally, site, or purpose determined.

There are at least two types of situations in which towers have been formally placed; those which were meant to create a line of tension between points, and those which were designed to create a pleasingly balanced composition of spaces and forms.

The Renaissance/Baroque concept of connecting major points with avenues made use of towers, in the form of Obelisks or at the center of important buildings. Avenues were used to create a continuous pattern of movement. Baroque Rome was dominated by Pope Sixtus V's plan for the city's rejuvination.. A tension was established between obelisks (towers) making the connection between them as important as the obelisks themselves.



POPE SIXTUS V's ROME [5]

[5] Edmund N. Bacon, Design of Cities (New York: Penguin Books, 1978), p. 138.

The obelisk functioned as an orientation point to look toward, rather than a viewing point to look out of. Therefore, the space about it, namely the avenue which channeled toward it, was a very necessary form. The place it created was an exterior one which looked onward toward the tower.[6]

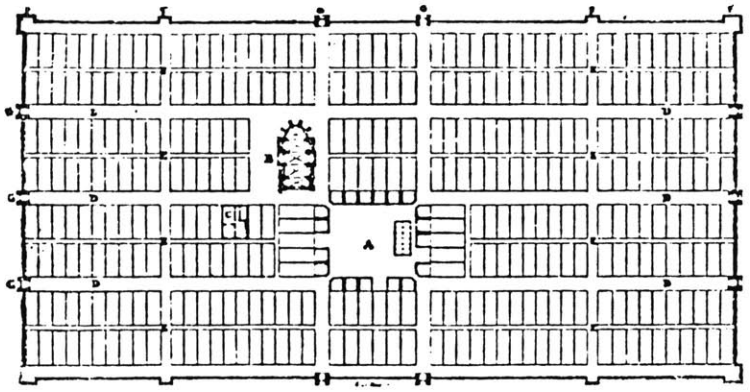
Those Architectural components which are used to express verticality in an otherwise horizontal composition, can also be considered as tower forms. The dome on Jefferson's Montecello and the spires of a Gothic cathedral have in common their consciously considered tower forms. The tower, used in amostly compositional way, may have a purpose within the building, however, it is probably a tower to be viewed from below and not to be entered up into. As with the obelisk, the space around and beneath the tower is important to the fulfillment of its purpose. Without adequate space, the tower could not satisfy its function as it could not be seen as a whole.

Although they have some qualities in common, towers whose placement has been determined by factors other than formal ones, create a very different sense of space than those purely compositionally situated. These informally placed towers will also be discussed in terms of two group types; those which are purposely designed to achieve a line of vision outward, and those which have been randomly scattered.

Towers designed for lookout or defensive purposes are likely to be situated in a manner which best suit that function, rather than any compositional one. Defense towers are built for observation of

[6] Ibid., pp. 87, 140.

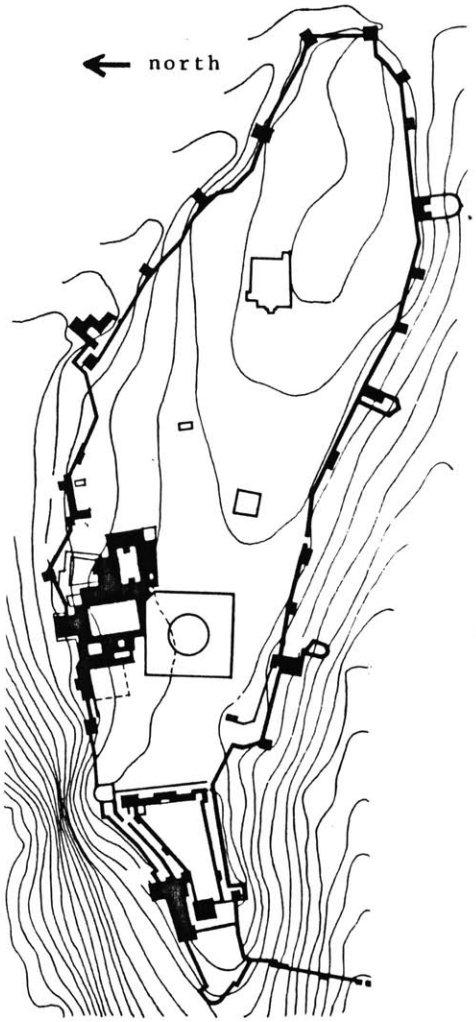
the enemy's likely path as well as observation of the territory to be defended (the city itself). The towers of a Medieval fortress are built along a site determined wall and are not the generators of any formal compositional decisions. This is made evident by the fact that while planned cities built on flat land, such as the French bastides, are quite regular in the placement of the towers, the cities of more rugged terrain, such as the Alhambra, are very irregular in their defense system.



MONPAZIER - FRENCH BASTIDE [7]

[7] Paul Zucker, Town Square, From the Agora to the Village Green (New York: Columbia University Press, 1966).

[8] Grabar, p. 31.



PLAN OF THE ALHAMBNA [8]

Park lookouts and the turrets and bay windows of 19th century housing are also informal in their placement. Their functions suggest that considerations made for view and light are most important to the design of the forms and position. The informal placement of towers allows the designer to direct his unbiased attention toward the functional opportunities offered by the form. Although composition may be a factor in design decisions, it does not override site and use related factors. Forms are added to the landscape for the enhancement of a theme, but the structure of their growth is loose in nature. The result is a more flexible architecture.

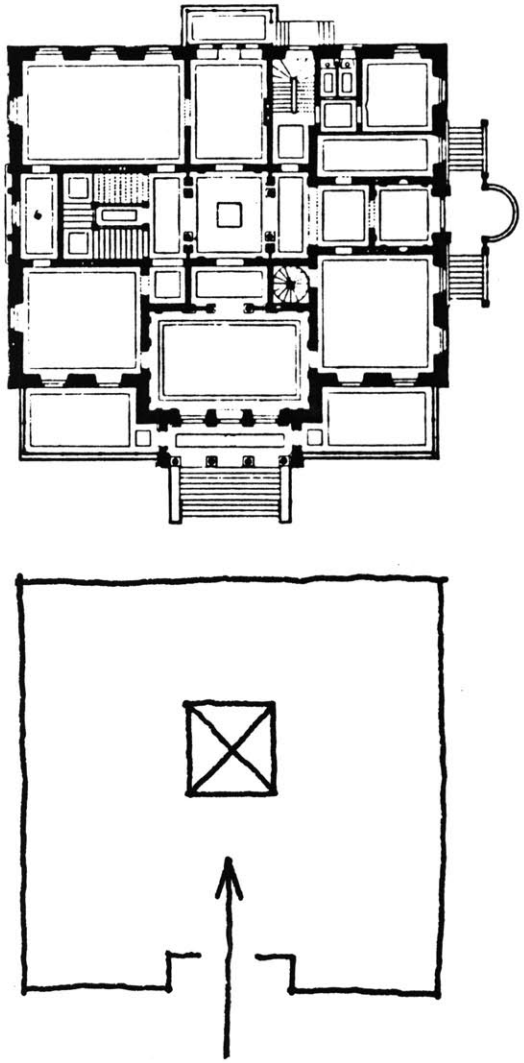
The scattered effect of tower location occurs when their quantity, within a relatively small area, is great. Although each church tower of London is formally aspired, their numbers create a field informally dotted with various pinnacles. On a larger scale, this scattered effect also describes the countryside, which is dotted with silos or windmills, and describes New York City with its many towers reaching for light, square footage and symbolic importance.

The positioning of the tower form greatly affects the form's practical and symbolic use within a building. Towers, which are private in nature, are situated within a structure in a different manner than those which are meant to be public. Likewise, towers which are signals, marking a particular space are located differently than those which themselves encompass spaces.

Several residences were examined in order to learn more about the positioning

of tower forms and how they relate to the overall plan of a residence. The most simple example is that of the formally placed lantern tower or central dome. As diagrammed, in Villa Planta (Chur, Switzerland), the lantern tower marks the most public of interior spaces by centering over that space. It is visable from both the outside and from within. Spacially the tower marks the major circulation paths of the building. Although it is not possible to be actually within the tower, the space beneath the form is inspired by its presence and the light admitted through it.

The tower of Villa Romerberg, Switzerland, also marks the most public interior space of the residence. This tower, however, is visible only from the building's exterior. It is not situated directly over the major public space but is placed to one side of it at the corner of the villa. It is a visually stabilizing mass which serves also to indicate the import-



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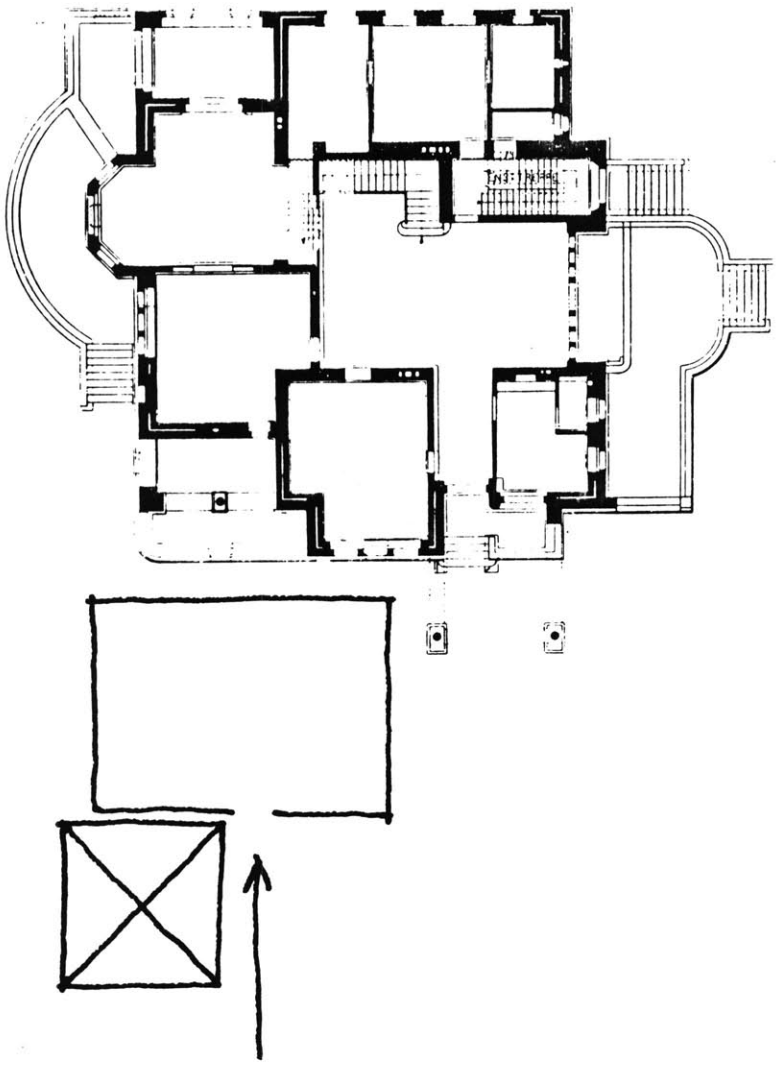
VILLA PLANTA - CENTRAL LATERN TOWER

[9]Othman Birkner, Baven & Wohnen in der Schweiz 1850 - 1920 (Zurich: Artemis Verlag, 1975), p. 77.



10

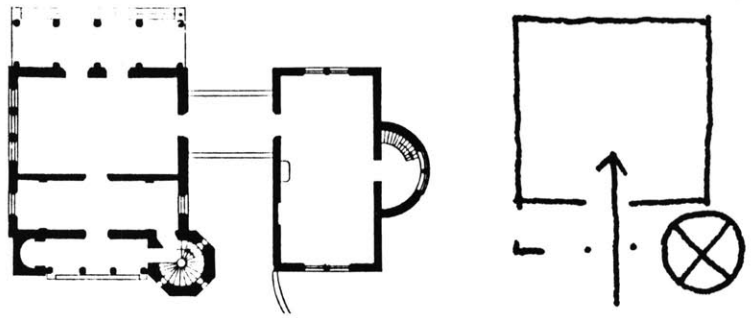
VILLA ROMERBERG

[10] Ibid., p. 82.

[11] Eyvind Alnaes, Georg Eliassen, Reidar Lund, Arne Dedersen and Olav Platou, ed., Norwegian Architecture Throughout the Ages (Oslo: Aschehoug & Co., 1950), p. 259.

ance of the entrance facade and the major space it is connected with.

Stairtowers, as the extravagance of their form often indicates, have purpose other than that of housing stairs. Their



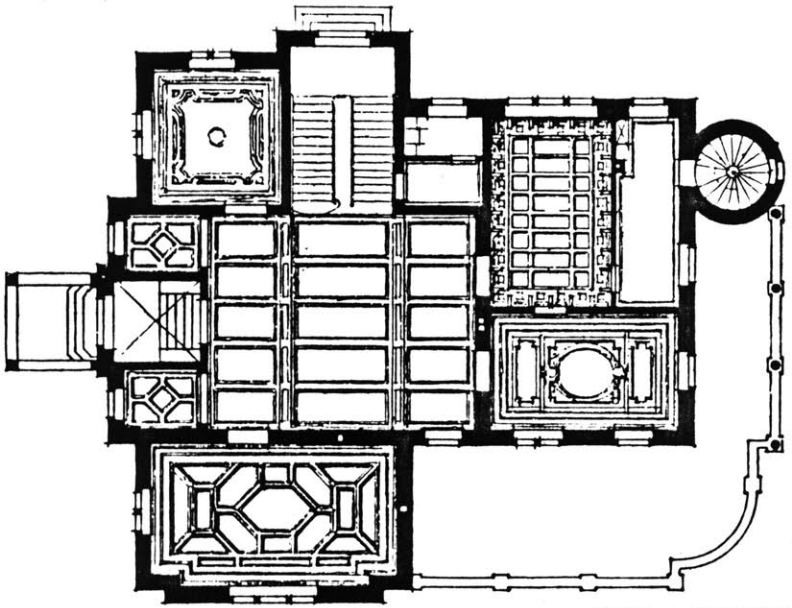
11

KING OSCAR'S HALL - TOWER AT ENTRANCE PORCH

External presense, as well as the internal space they enclose, is heavy with symbolic meaning and fulfills some important organizational functions. At King Oscar's Hall, in Oslo, the stair tower is placed at one side of the entrance porch. In this way, the tower serves as a key to the entrance as well

as access to upper levels of the building and as a look out point. One may enter the tower both from the exterior porch and from the interior front room. It is thereby more public in nature than a stair only accessable from building's interior and acts as a vertical transition zone from public to private which compliments the horizontal transition zone of the entrance porch.

The stair tower at the Castle of Jung + Bridler at Neftenbach, Switzerland is at the most private region of that residence. Though its storybook form is visible from the exterior and is ment to render castle like status to the villa, it is accessable only through a private veranda or study. It may be entered only through the study. The tower provides its user with a view of



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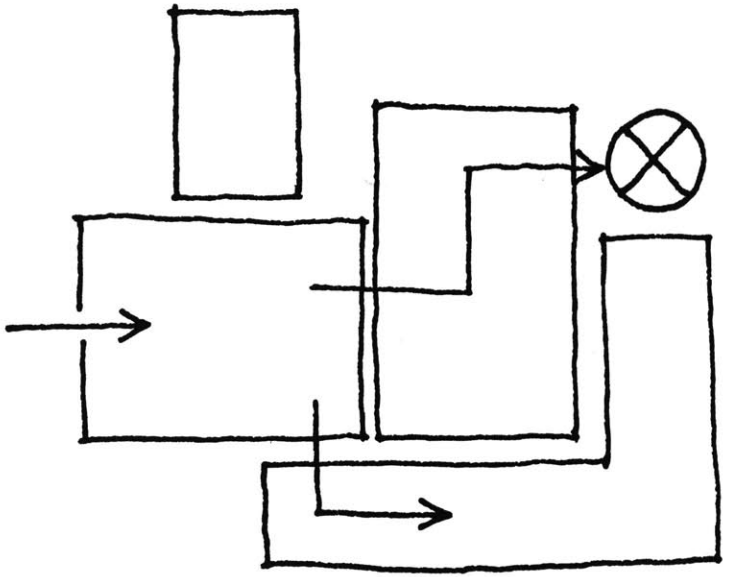
JUNG + BRIDLER

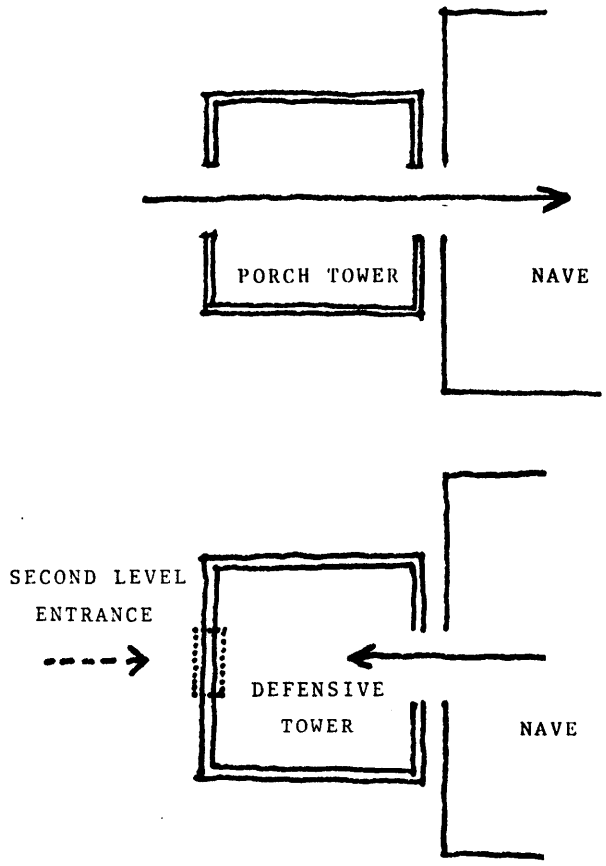


[12] Birkner, p. 79.

the more public terrace and landscape while allowing him to remain uninvolved.

There are many ways to enter a tower and they should be kept in mind when considering the use and position of the form. Some towers may be entered directly from ground level, others, expecially those which are defensive in nature, require the user to rise to an upper level before actually passing into the lower region. This is at least partially dependent on the function of the tower.

The Angle-Saxon church tower is commonly used as a porch or transition space before the entrance into the nave of the church. In this position, the tower marks the church entrance while providing and intermediate stage of ingress. To the general parishioner the tower's height is important only form the exterior, as a form, rather than from the interior, as a space. In it more defensive form, the church tower has no access at the gound level other than that which

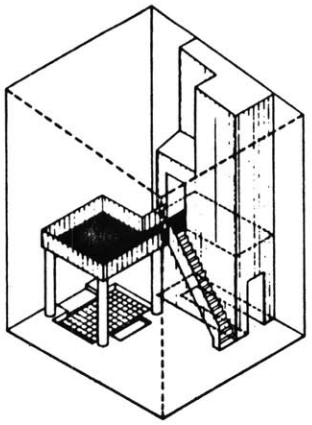


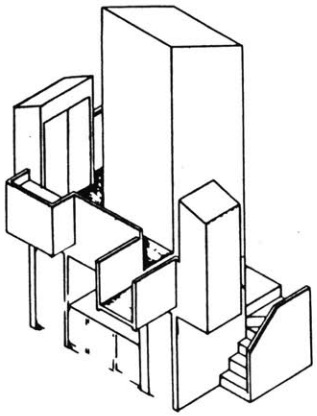
ANGLO-SAXON CHURCH TOWERS

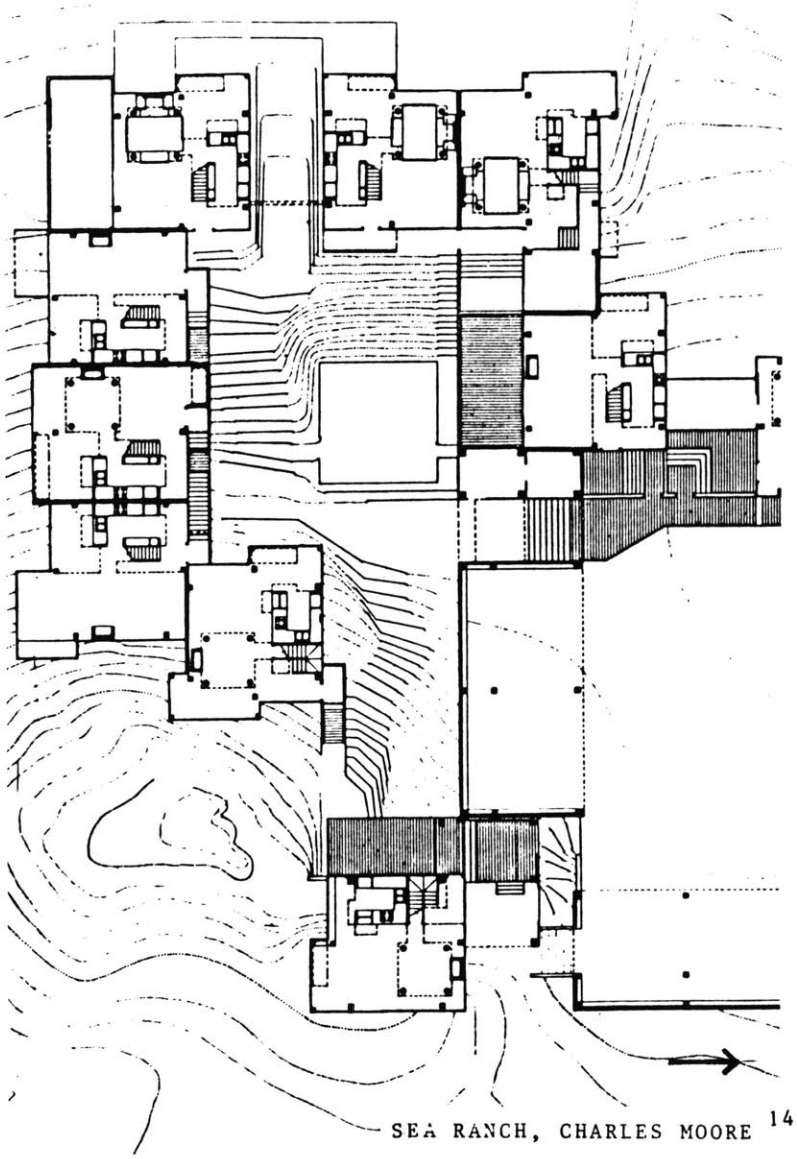
joins it to the nave. The church itself, as well as the tower, was used as a stronghold in case of a village raid.[13]

[13]Fisher, p. 106.

The interior tower-like forms of Charles Moore's Sea Ranch are approached by a stairway, which climbs alongside the form, before it allows sone to enter the the tower itself. This concept can be contrasted to the park lookout structure in which the stairway itself is the core around which the tower is structured. Moore's towers, bounded by circulation, tend to be less outwardly oriented than the lookout tower. Correspondingly, its function combines properties of the lookout tower with those of a living space.

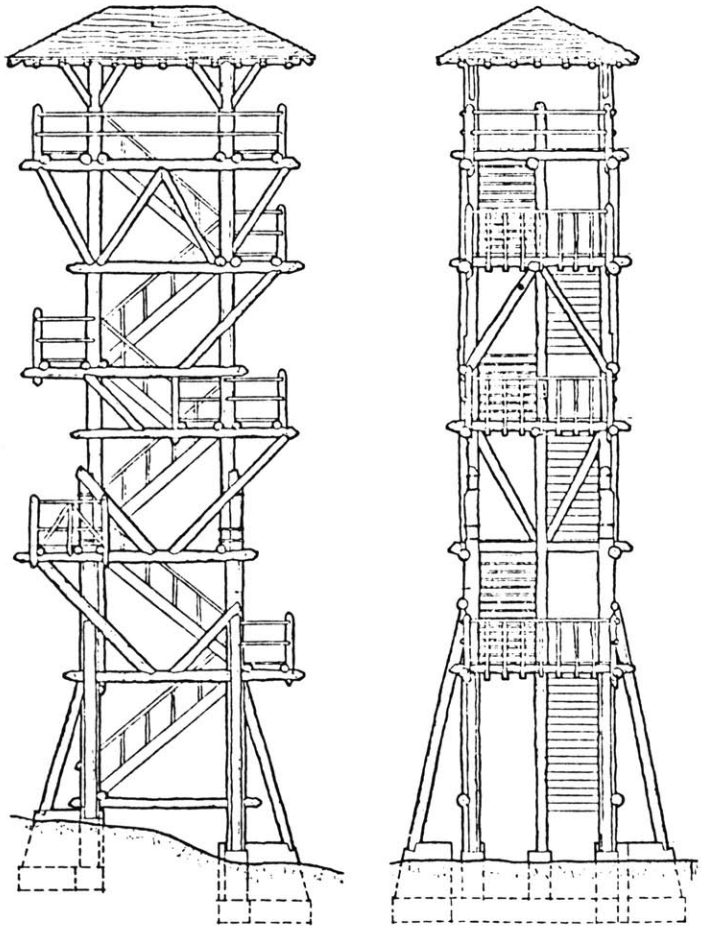






SEA RANCH, CHARLES MOORE [14]

[14]Gerald Allen, Charles Moore (New York: Granada Publishing, 1980), pp. 32, 34.



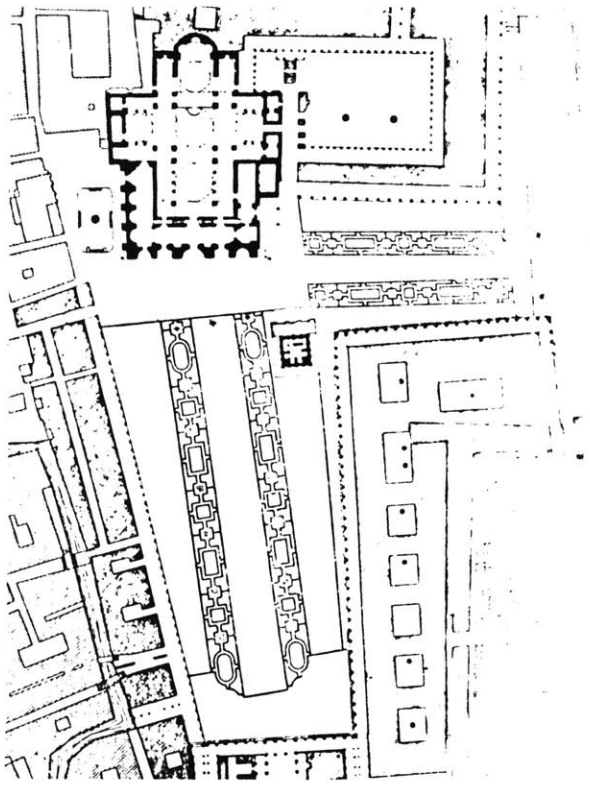
LOOK OUT TOWER[15]
MT. NEBO STATE PARK, MICHIGAN

Although some towers stand alone, such as the Irish Round towers built for defense, most are dependent on other spaces or complementary forms. If the tower is to be used as a precedent, its complementary forms and spaces must also be considered. The medieval city's guarding towers must be studied as one with their connecting walls. The presence of the wall creates a pocket of space, betweenthe wall and the out-most row of buildings. That space, used for everything from accessways to vegetable gardens, accomodates a degree of privacy and safety which the tower form is dependent on if its transformation is to retain any likeness to the precedent

[15]U.S. Department of Interior, Branch of Planning, Park Structures & Facilities (District of Columbia: U.S. Department of the Interior, 1935), p. 152.

when transposed to a new context.

Often, towers of a more public use nature (towers found on important state or religious buildings) depend on forms and spaces which enhance their public use, Squares, loggias, public stariways, seating which provide "places" for people to be, help to make the tower itself more important to city life. Saint Mark's Square, in Venice, exemplifies this. The domes or towers found on cathedrals which are adjacent to public squares, have an interesting relationship with those squares. The towers are normally found over the transept and are a signal which mark the more private section of the cathedral and the end of the public square. The tower therefore, increases the public nature of the square by defining the private adjacencies.



ST. MARK'S SQUARE, VENICE[16]

Because the design project, which was chose to exemplify use of the tower as a precedent form is residential in

[16] Bacon, p. 104.

nature, it is appropriate to observe several types of towers found in a residential context. Towers have been constructed on dwellings for many reasons including defense, status, enjoyment, environmental advantages and space considerations. Various towers can be found in more than one of thes capacities.

Fortressed cities, forts and castles made use of towers for the defense of a common good and the safety of many people. Towers of Italian villages, such as San Gimignano in Tuscany, however, were as important in terms of status as they were defense. Each family and its supporters strove for the highest tower. The tower palace became to the South of Europe what the towered guild house was to the North, the architectural expression of the urban power structure.[17]

In ninteenth century American homes, turrets were facilitated to capture light and view. They were built purely for the enjoyment of the owner. When they are stacked to reach a height of several stories, bay windows can also be considered towers. Their verticality often defines the main living spaces of a home. The bay's protrusion of the "skin" of the house, allows for a better view of the street and admits more natural light creating an observation "place" where one can be undisturbed.

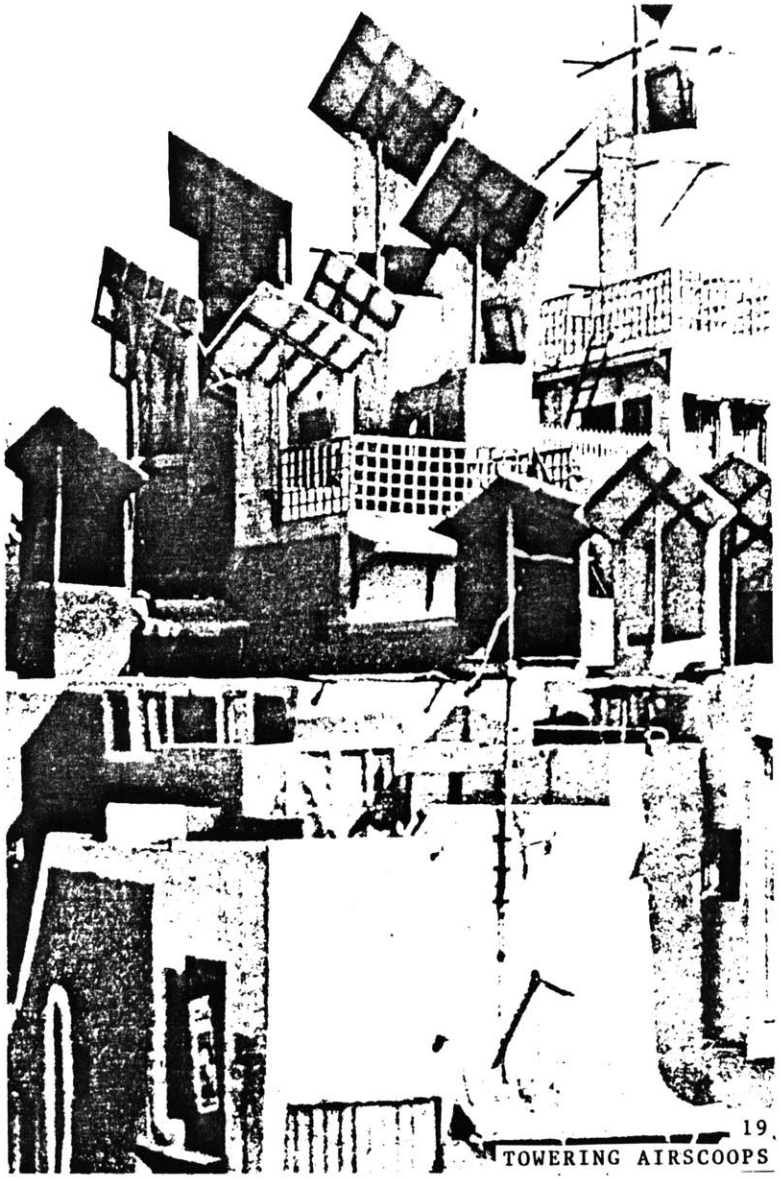
Towers which are Belvederes, designed for viewing the countryside, and the towers of palaces are also designed for enjoyment. Italian hunting lodges and farmhouses, found in the equivilent of our suburbs, often boasted a belvedere rising from the center of a hipped roof and topped with a dovecote. Homes such as thesesupport the notion that towers can be justified when not needed for defense, even if by only the enjoyment they can offer.[18]

There are examples of towers used for their environmental advantages throughout history. Towers resembling

[17] James E. Vance Jr., This Scene of Man, The Role and Structure of the City in the Geography of Western Civilization (New York: Harper & Row Publishers, 1977), pp. 131-3.

[18] David R. Coffin, The Villa in the Life of Renaissance Rome (Princeton: Princeton University Press, 1979), pp. 134-5.

a forest of half open cans are used as windscooped airshafts in the lower district of West Pakistan. At Sea Ranch, Charles Moore has allowed his condominiums to tower above each other and the natural hillside in search of sunlight. Where density is necessary for economic or climatic reasons towers have been an efficient answer. Designers have occasionally been able to incorporate their potential as a symbolic form with environmentally useful qualities.



19. TOWERING AIRSCOOPS

[19] Bernard Rudofsky, Architecture Without Architects (Garden City, New York: Doubleday & Co., Inc., 1964), p. 115.

Design

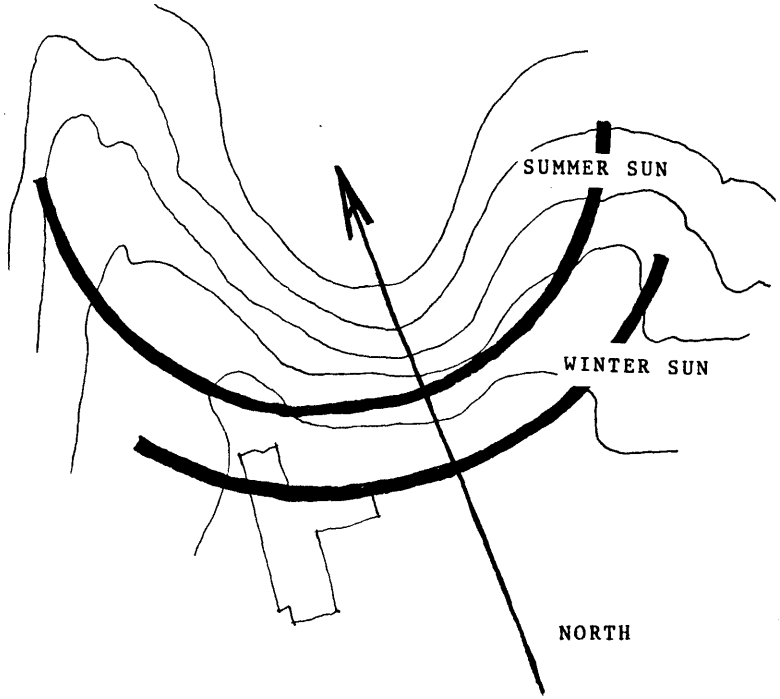
Site Analysis

Design Themes

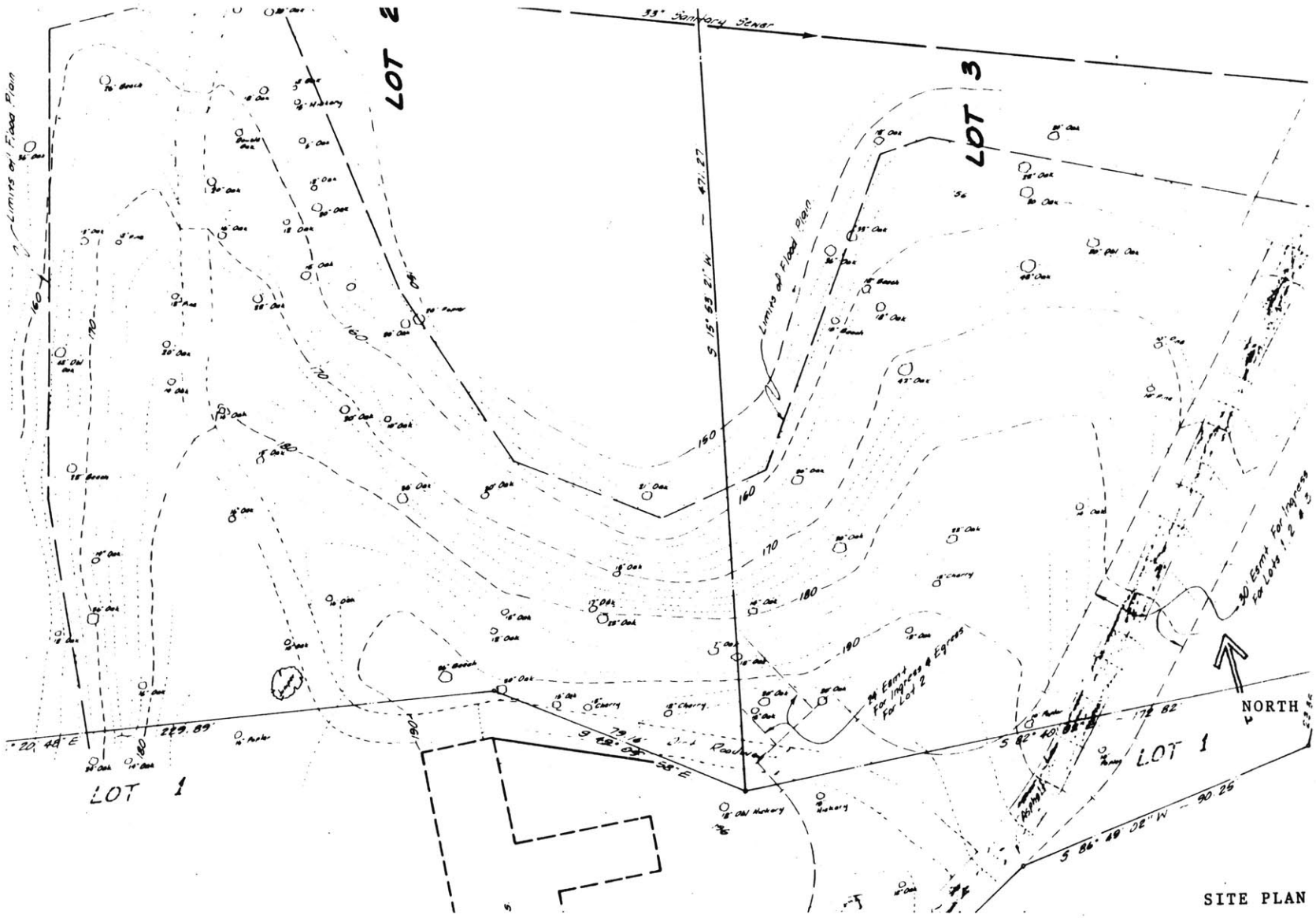
The site chose for this thesis, Randliegh Retreat, is in McLean Virginia, a residential suburb of Washington, D.C. It is quite rural in atmosphere and density yet is easily and quickly accessable to downtown Washington. The buildings neighboring the site are few. They are widely spaced, single family residences.

The site itself is a horseshoe spaced ridge rising forty feet above a flat plane which is carved by a small stream. The ridge is steeply sloped and provides almost no flat building terrain. As the site drops dramatically toward the flood plane and stream, the land forms two peninsulas. The connection between the two will provide an important link to the cluster's ability to read as an entity or as two separate parts.

Ingress to the site is provided by a dirt road which crosses the stream by means of a narrow stone bridge. Upon passing over the bridge both peninsulas are visable. The convex cerve of the horseshoe site opens toward the north leaving it in shade when the sun is low.

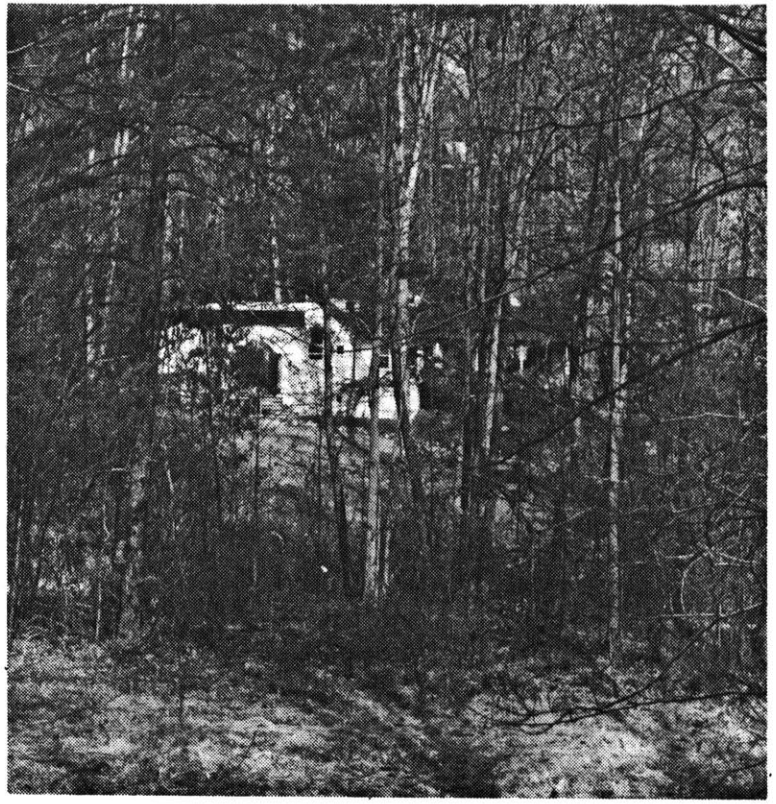


SITE from northeast corner


LOT 2
LOT 3
LOT 1
LOT 1
Limits of Flood Plain
Limits of Flood Plain
S 15° 59' 21" W — 471.27
S 20° 48' E — 229.89'
S 82° 40' 02" W — 90.26
30' Easmt For Ingress & Egress For Lots 1, 2 & 3
30' Easmt For Ingress & Egress For Lot 2
NORTH

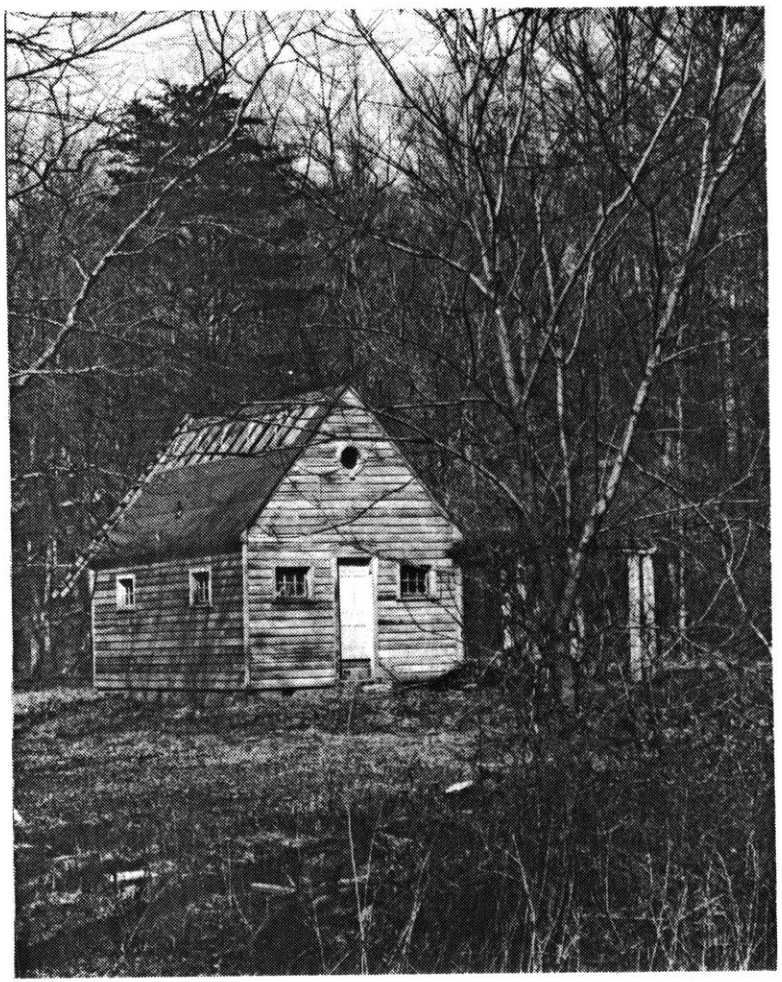
SITE PLAN

NEIGHBORING HOUSE to south
shown on site plan



NEIGHBORING HOUSE

BORDERING STREAM

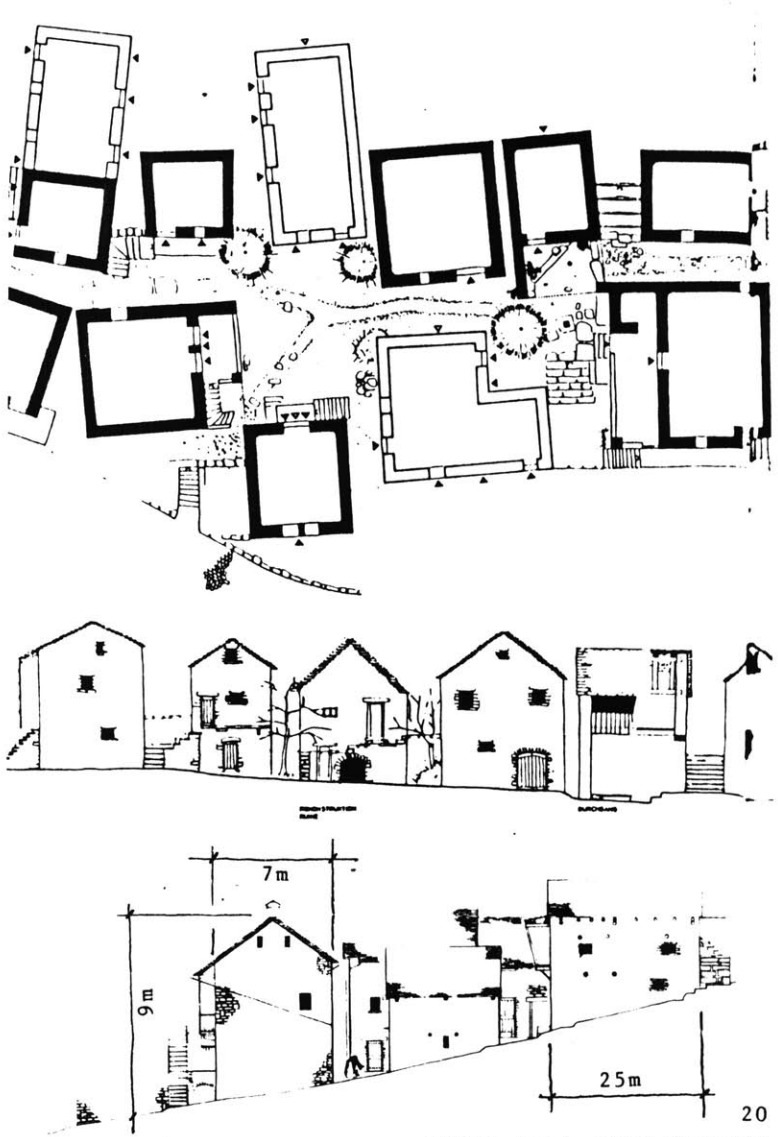


NEIGHBORING CABIN

SITE from west hill

The ridge, however, is always in light. When standing on the ridge one is in the light looking through darkness into the light of the plain.

Upon visiting the site and after reading of towered structures, I began to develop several thematically based concepts. The fact that the site is dramatically steep and north oriented has been a strong influence on the attitudes and design determinates I have accepted. The scale of the hill strongly controls the building sizes which are appropriate. Although a large entity is possible, it must be composed of smaller pieces if the hill is not to totally lose its character. Because of this, an additive composition, informal and derived mostly from site features is a reasonable basis. After determining an optimum range of piece sizes with the aid of a site model, sections and existing building built on similarly sloped terrain, I began to work with a series of historically based themes.

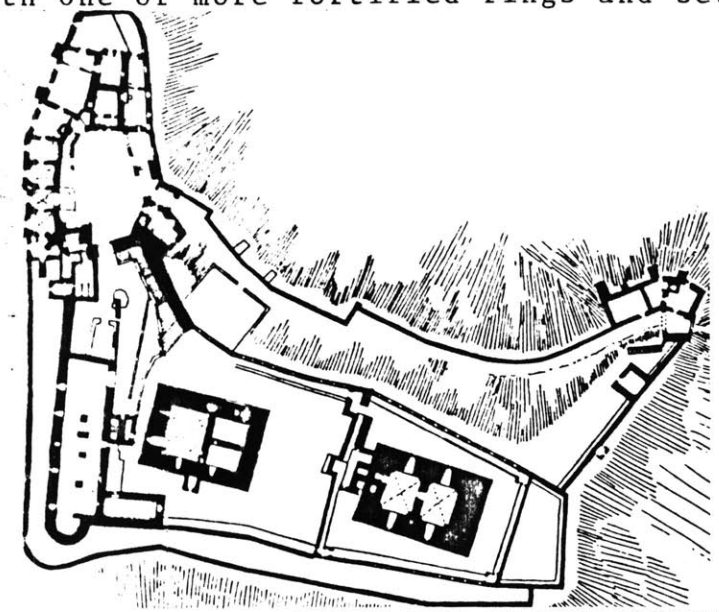


20

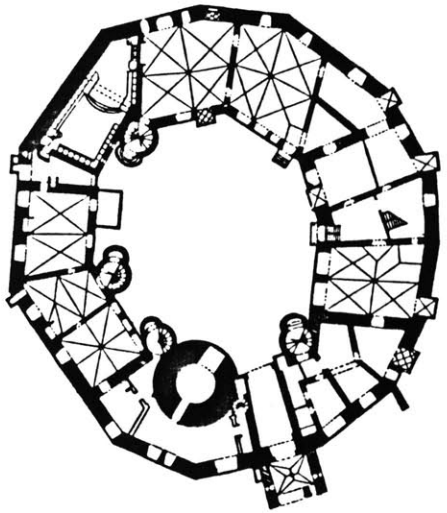
SWISS HILL SIDE VILLAGE

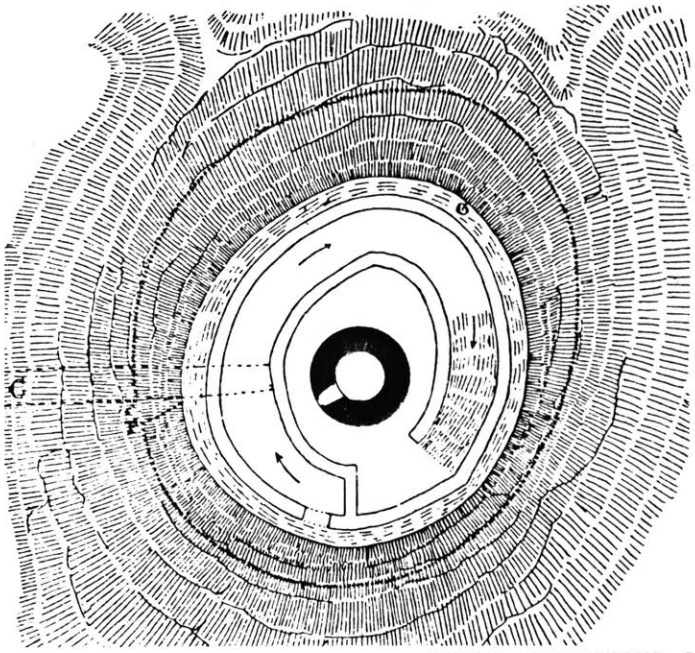
[20]Weiner Blaser, Architecture 70/80 in Switzerland (Boston, MA: Birkhauser Verlag, 1981), pp. 18, 20.

Theme I compares the site with Medieval defensive cities. In its most defensive form, the walled city is circled with one or more fortified rings and set



LESS DEFENSIVE CITY REACHING OUTWARD



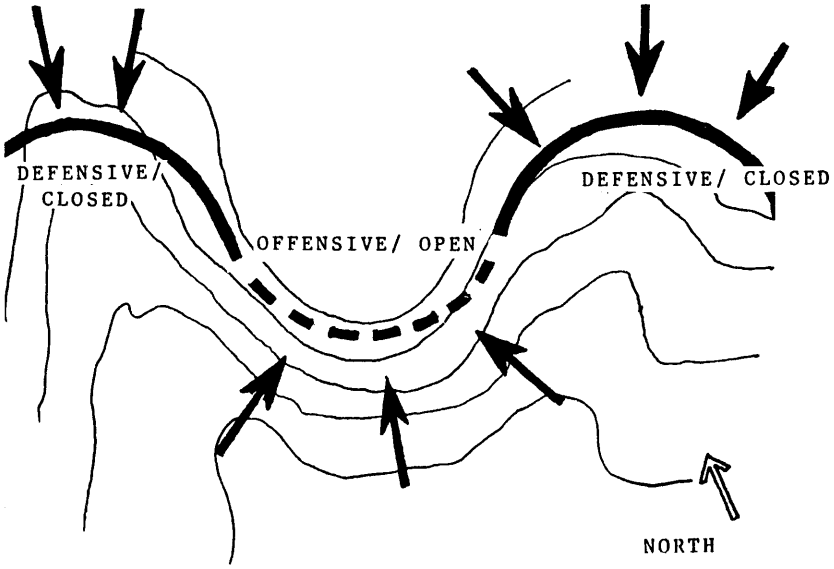


21

INWARD DEFENSIVE CITIES

[21] Bacon, p. 43.

upon steeply contoured land. The cities are turned entirely inward, facing the land around them convexly. As the need for defense lessened, the towns spread themselves more, taking better advantage of the natural environment. The Randleigh site can be described as having two defensive portions: one where the land can be walled in and watch from three sides, and second, a more offensive place where the land concavely embraces the flatter land to the North and walls are



not necessary to prevent access. These offensive/defensive positions could be re-enforced architecturally by recalling the basic parts of any tower or fortress. The base should be denser and more continuous than that which is built higher up. Perhaps the site could be developed in a similar way. The central portion which is less in need of defensive walls can share some of the characteristics of those less defensive portions higher in elevation.

Environmentally, the offensive/defensive plan also makes sense. The hillside, which faces north can turn its defensive, harsher and more formal side toward the valley while opening itself toward the south. Entrance to the houses should be from the upper, south facing side, from with the fortress. The house and its immediately adjacent terraces can be divided into two parts with two attitudes. The south facing/winter/defensive side is facing the core of the

fortressed area. It is the most public area; most open to light and most human in scale. The North facing/summer/offensive side, boldly faces the landscape. Its scale is larger and less penetrable. As in the Medieval city the center is the most public and that space just within the walls is most private.

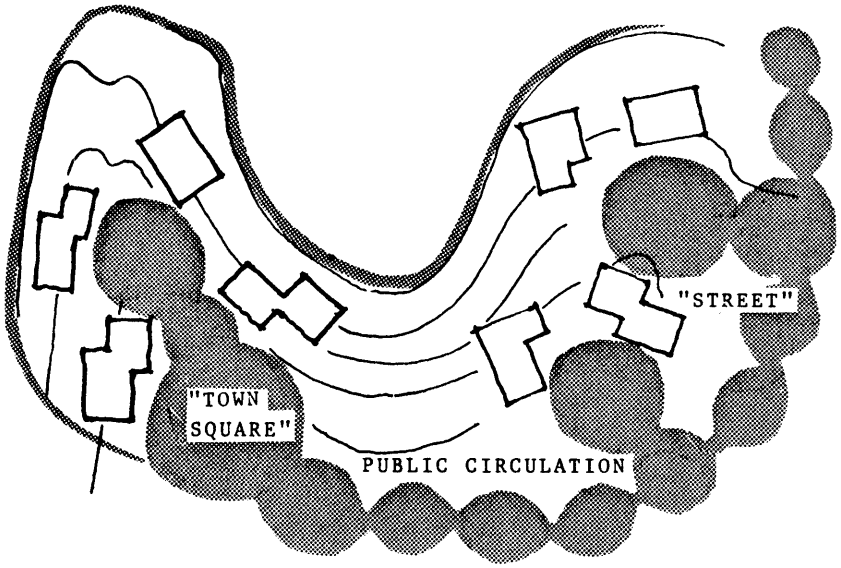
The sunlight reinforces the public/private, offensive/defensive aspects of the fortress scheme. The puble areas, which simulate Medieval town squares at a smalle scale, are relatively large terraced areas at the south/upper side of each set of buildings. They are designed to be almost always in sunlight. The private areas, however, which reach down hill, facing north and the view, are often in shadow. This placement of built structure, allows one to stand in the light of the public areas, look through shaded private areas and across the fortress wall to the landscape. This phenomenon is repeated as the outside observer looks from the sunlit meadow, past the defensive elevation and through to the sunlit public areas.

The wall of the fortress provides an encompassing sense of private community and a built connection between the two hills. The wall is a walkway which enables the pedestrian to encircle the whole site without interfering with private property. The steepness of the site would otherwise make walking very difficult. The assumed building density makes very important the clarity drawn between public and private.

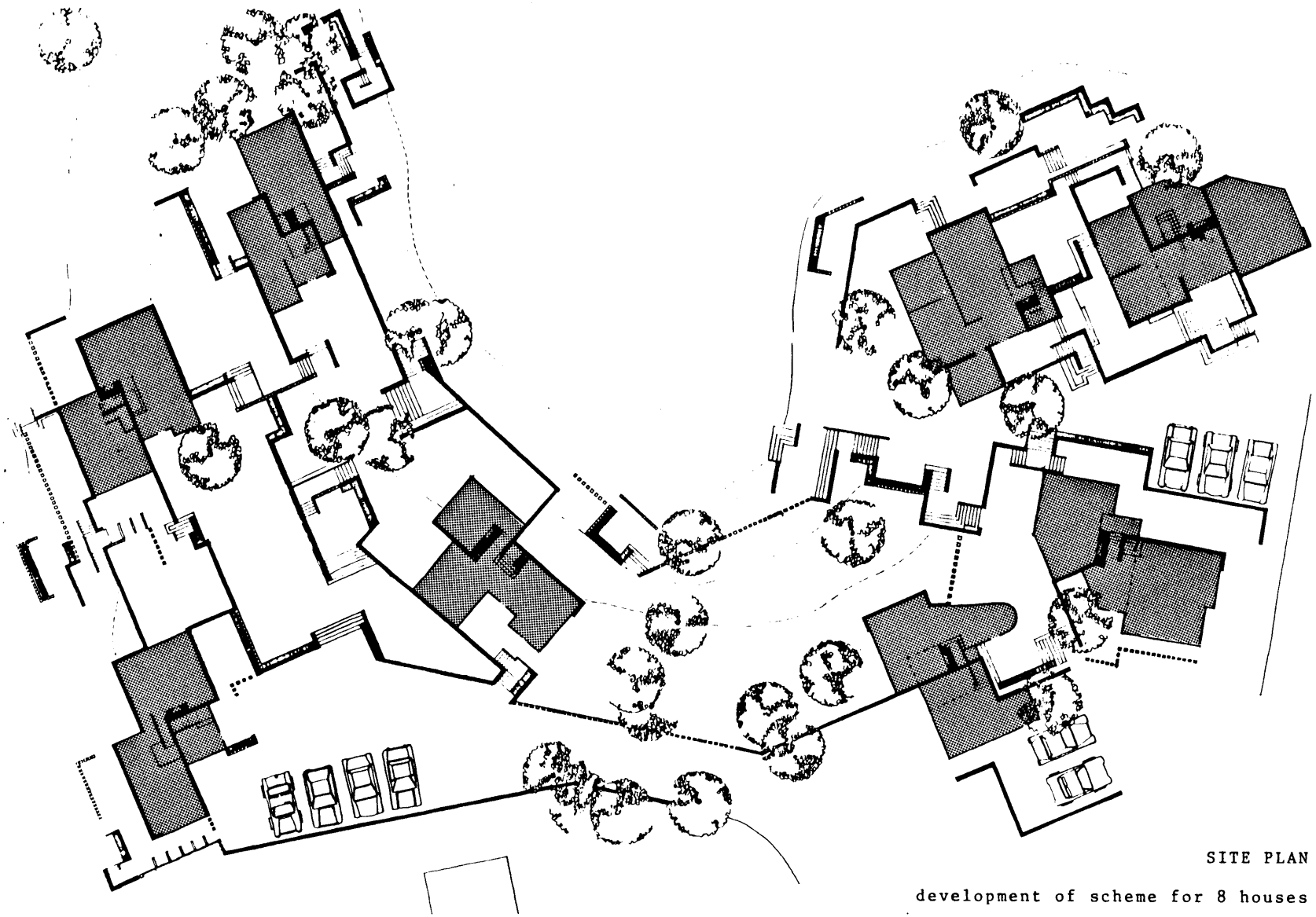
Theme II is a continuation of the concern for definition of public and pri-

vate in this fairly dense situation. Although the two hills have some qualities in common, the simularity does not form a symetric site.

The automobile entrance to the site forms the outside border of the east hill, where as the west hill is bordered by a stream and quite scenic a view. Because cars can not feasibly access down the west hill, and because it is, in a true sense, a peninsula (surrounded on three sides by view-accessable only from the forth side), it calls for a different organization from that of its complimentary hill. The east hill suggests a linear organization. The path of public circulation, marks the eastern side of the hill and all four houses are oriented toward the north and west view. The west hill, on the other hand, supports a more radial or clustered organization. Vehicular circulation does not penetrate past the top of the hill. A group of public spaces are formed on the ridge which flows from the roads end. They are formed much as Medieval grouped squares. The houses are clustered around them, two orienting toward the east and two toward the west.



The western, "peninsula", hill continues its town square attitude by providing a public, common, ground which serves the four houses and into which more private accessways converge. From this central position, one can catch glimpes of the landscape between the buildings.

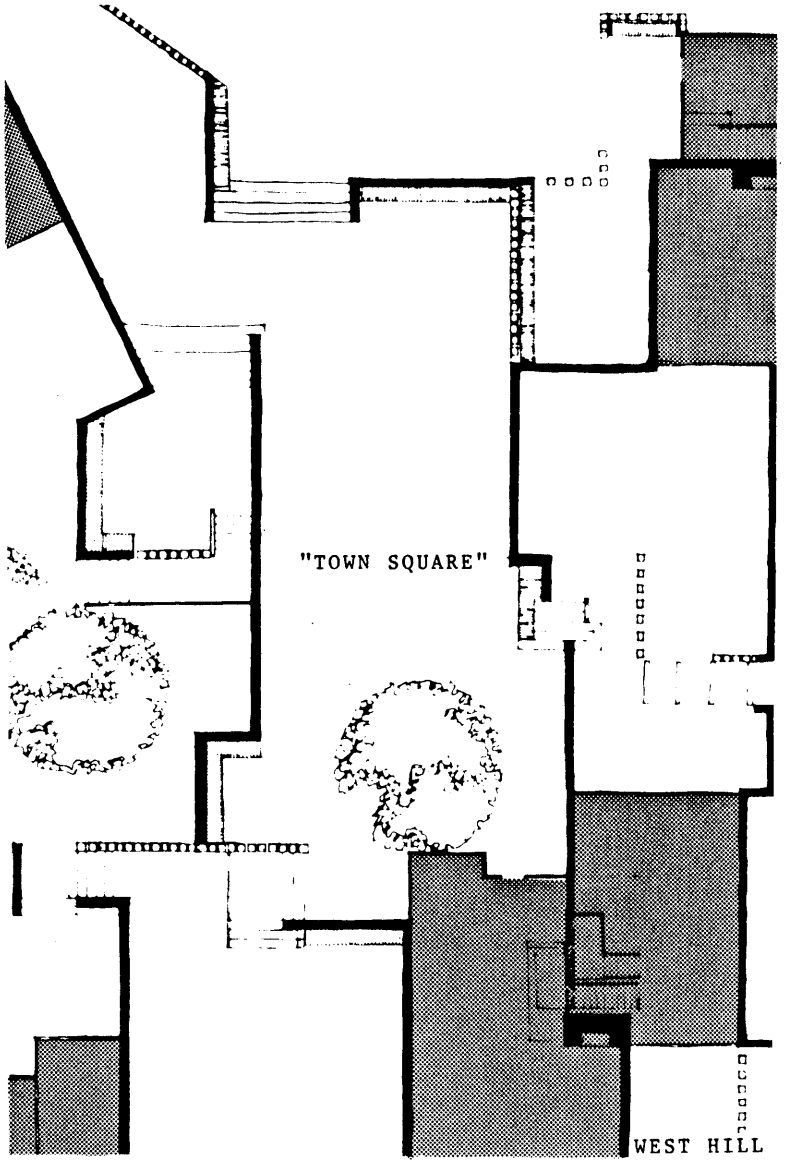


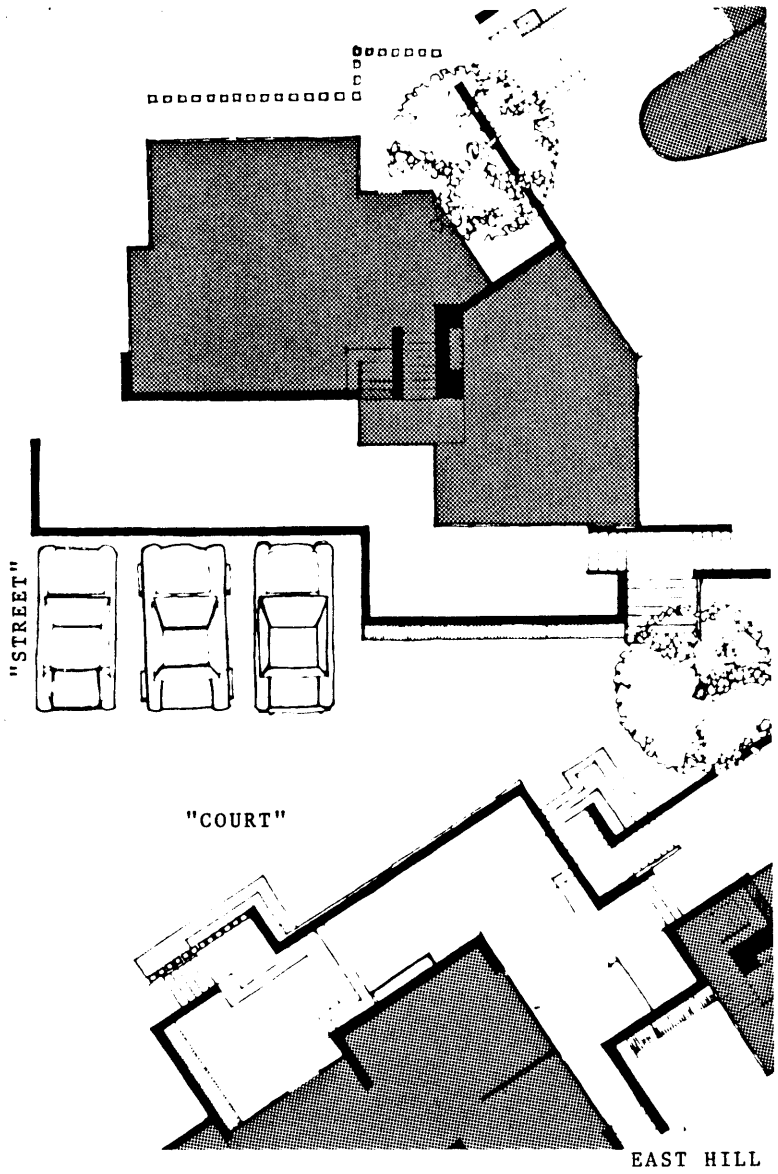
SITE PLAN

development of scheme for 8 houses

The widening of the road at the end of the vehicular circulation is different in degree of activity, and in use, from that part of the cul de sac which is more pedestrian oriented. Therefor, the public space is given two parts which are separated by a level change and a tightening of the space between the buildings. In this way there are created a series of transitions, between the road, the parking area, the public square and the private accessways.

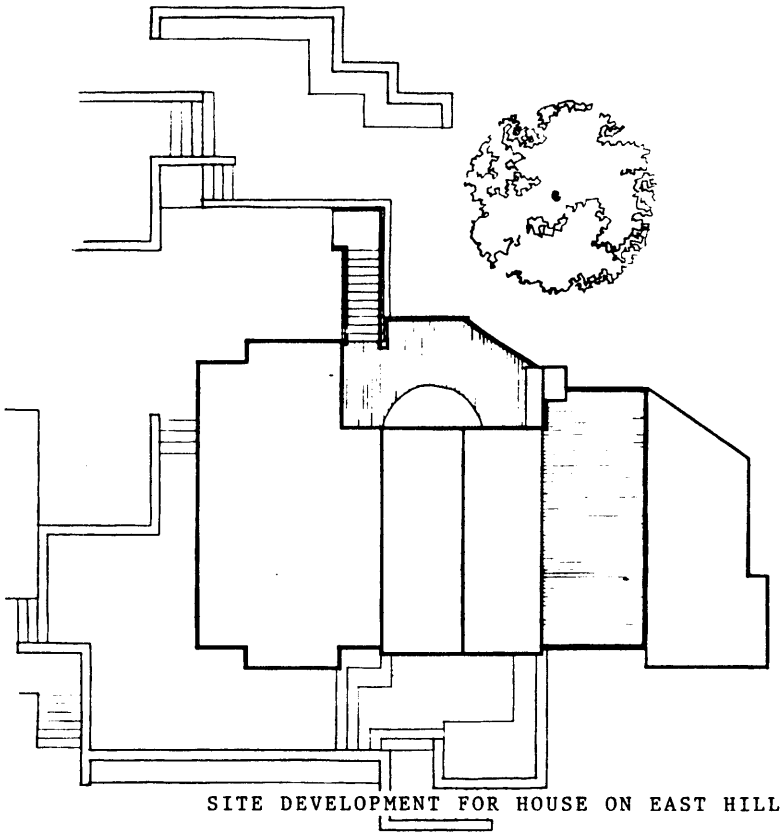
The organization of the east hill can be compared to that of a street situation. The road entering the site is the main throughway off of which two short lanes flow. The are really kinks or bulges in the road. As did the town square situation, these widenings, provide a clearly public area, (each one being for two houses) off of which more private spaces are joined. The difference between the two organizations is made clear in the fact that there is an





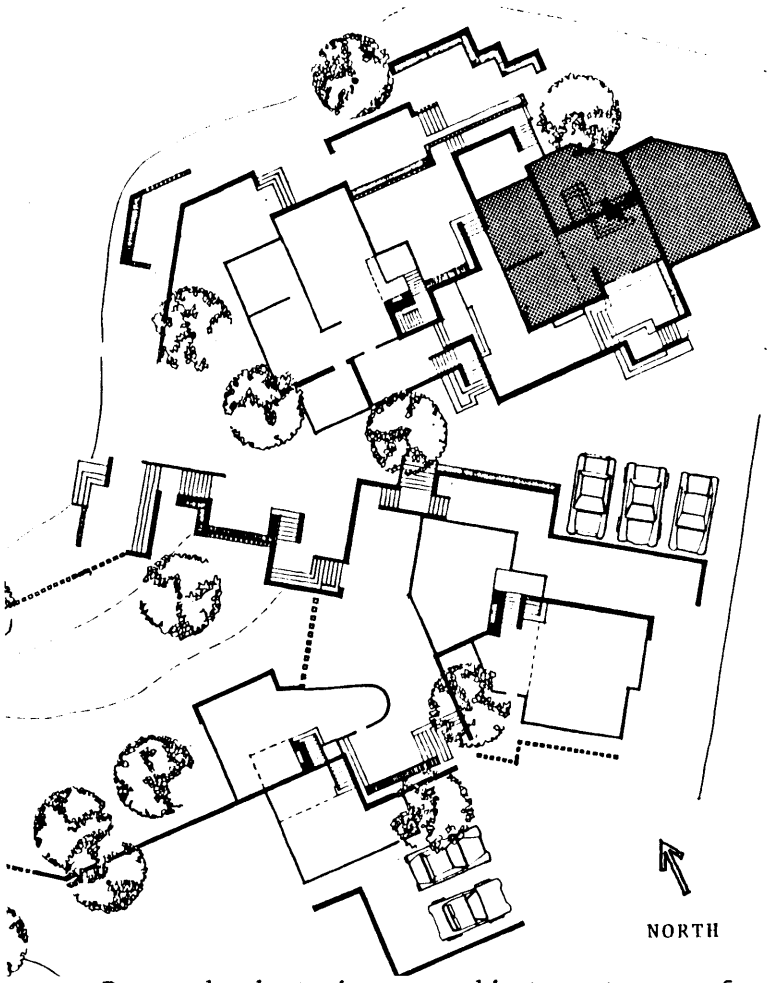
obviously primary orientation of the public spaces on the east hill, whereas, the public space on the west hill takes a central or hub position.

Theme III involves the forms and spaces which are the support of the fortress concept in theme II. This, of course, includes the tower form. Transition from the public situation of the square, to the most private situation of the buildings themselves, is important to the success of any such adjacency. As in many town square situations, for example St. Mark's in Venice, the public areas of this housing development are encircled by loggias and porch type structures. These provide an outdoor



SITE DEVELOPMENT FOR HOUSE ON EAST HILL

space which permits view of public areas without total involvement in them. Such elements such as low walls, stairs and seating also create places which are "in between" the public and the private realms.



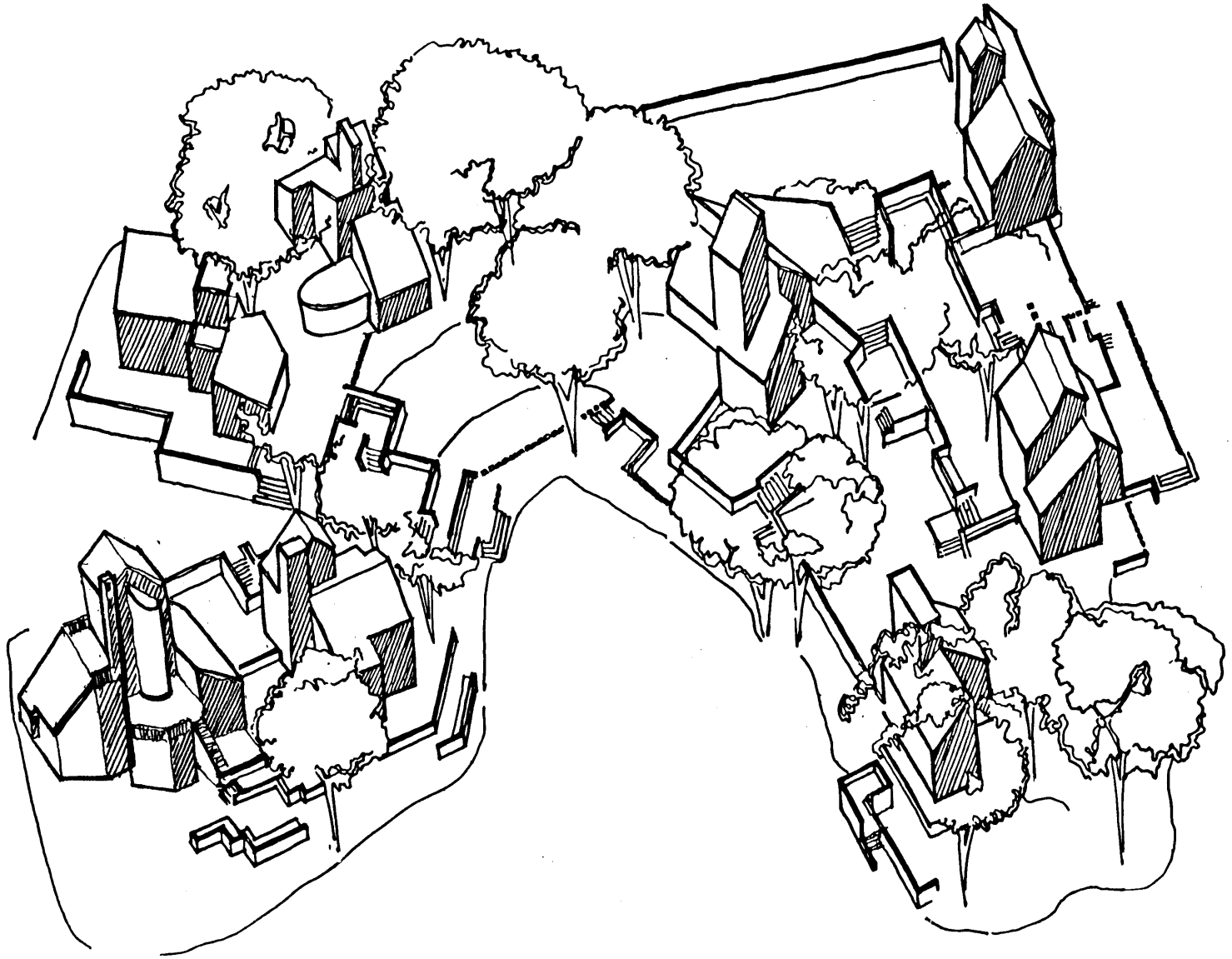
Beyond that intermediate stage of privacy, lies the privacy of the house itself and the ultimate privacy of the tower. The tower actually serves two

functions in indicating the degree of privacy. From the public, outside, zone it serves to mark either a major public space or an especially private space within the house. On the building's inside, it allows its user to view a more public space from a safe and uninvolved distance. The town square, loggia and tower type forms are necessary supports for each other's ability to fulfill certain needs.

There are many roles the tower is able to fulfill in this particular housing situation, though the support of a particular image is probably the most important. The tower signals to the individual identity of each house and at the same time it functions as a common element and a key to the continuity of each cluster of the development. As did the towers found at San Gimignano, the towers of this site propagate a sense of individuality and status in a fairly dense situation.

Theme IV concerns itself with the tower as an isolated element and considers possible tower uses in the individual residence. The tower is a structure which can be common to all eight houses on the site. In order to exemplify use of the tower and of other elements which are to be the common structure of these houses, one house and its immediate surroundings has been designed to a detailed level.

The most obvious organizational structure is the use of the tower as the center of communication and orientation for the many levels of the house. The house, and all its functions, pinwheel about the spiraling tower. The

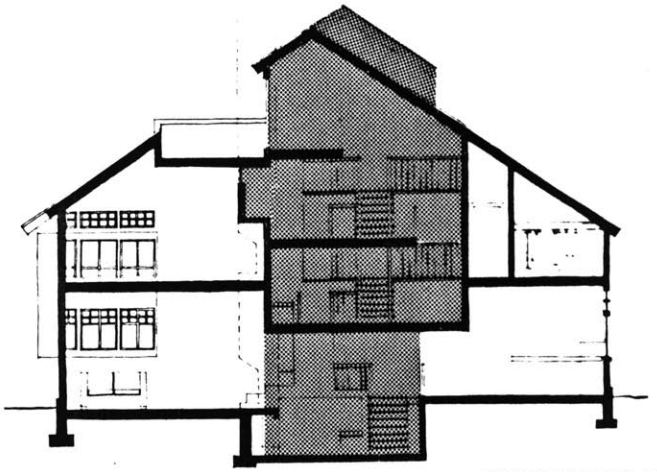


CONCEPTUAL AXONOMETRIC

tower allows for a transparency of spaces. Spaces are linked and overlapped by their connection to the tower and its appendages. At any point along the path, which spirals within the tower, one is presented with several choices of destination. Several degrees of privacy are held within the tower as well as the places which juxtapose the actual form.

As the totality of the site was viewed as a fortress, the house itself and particularly the tower form, can be thought of in defensive terms. At the base of the tower, where distinction between public and private is most important, the tower should be an enclosed form (surrounded by the body of the house). As it rises, the tower may be freed from its encasement. This can be represented by a material change as well as a liberation of form.

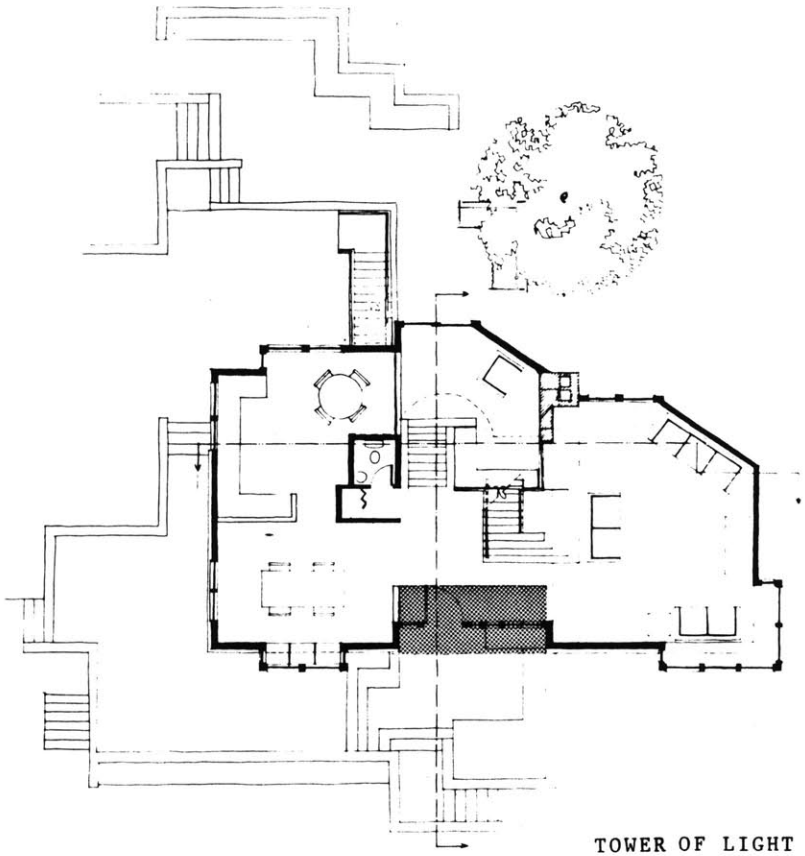
The northern orientation of the site makes penetration of sunlight into private spaces difficult. The tower, as



ORGANIZING TOWER

SOUTH ELEVATION

a form, enables private spaces to be lifted into the light, above the shadow of the hill. As a shaft of space, the tower enables sunlight to be reflected down into the house itself. These, or course, are the same concepts used in the lantern towers, cupolas and bay windows found in nineteenth century houses.

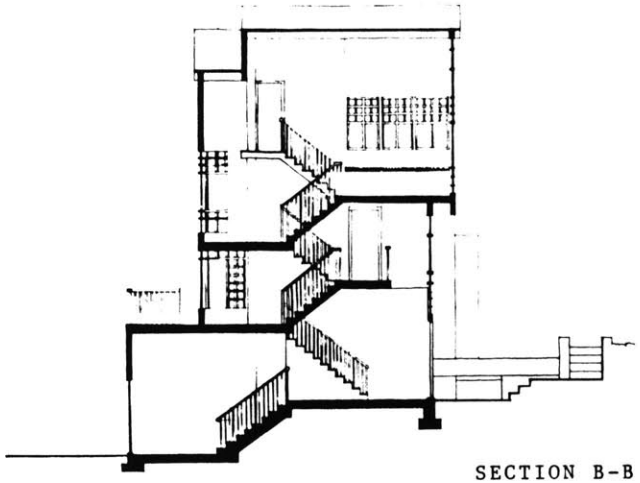


TOWER OF LIGHT
see page 56

The structure of the medieval city, and the use of the tower has been described both in terms of the site and the individual house. There are, however, other organizational and formal attitudes which can be common to all eight houses as an indication of their membership in the group. Although the program can vary from house to house, and even from year to year, the attitude taken by the designer will establish a clarity and unity within the cluster.

A combination of stone and wood has been used in order to distinguish the less structured, "offensive," walls of

the houses from the more fixed, "defensive," walls. As the house grows higher, there is less use of stone and more of wood. The forms likewise become freer. Bay windows and cupolas are of course constructed of wood. The stone retaining walls, which are the most fixed organizational forms in the complex, are integral to the houses themselves. They not only allow for level changes, but help to provide continuity between the houses and their immediate surroundings. The same walls which terrace the steep hill outside, terrace the homes inside and are the base for tower forms. The walls, like the towers, comprise the basic structural attitude of the scheme.



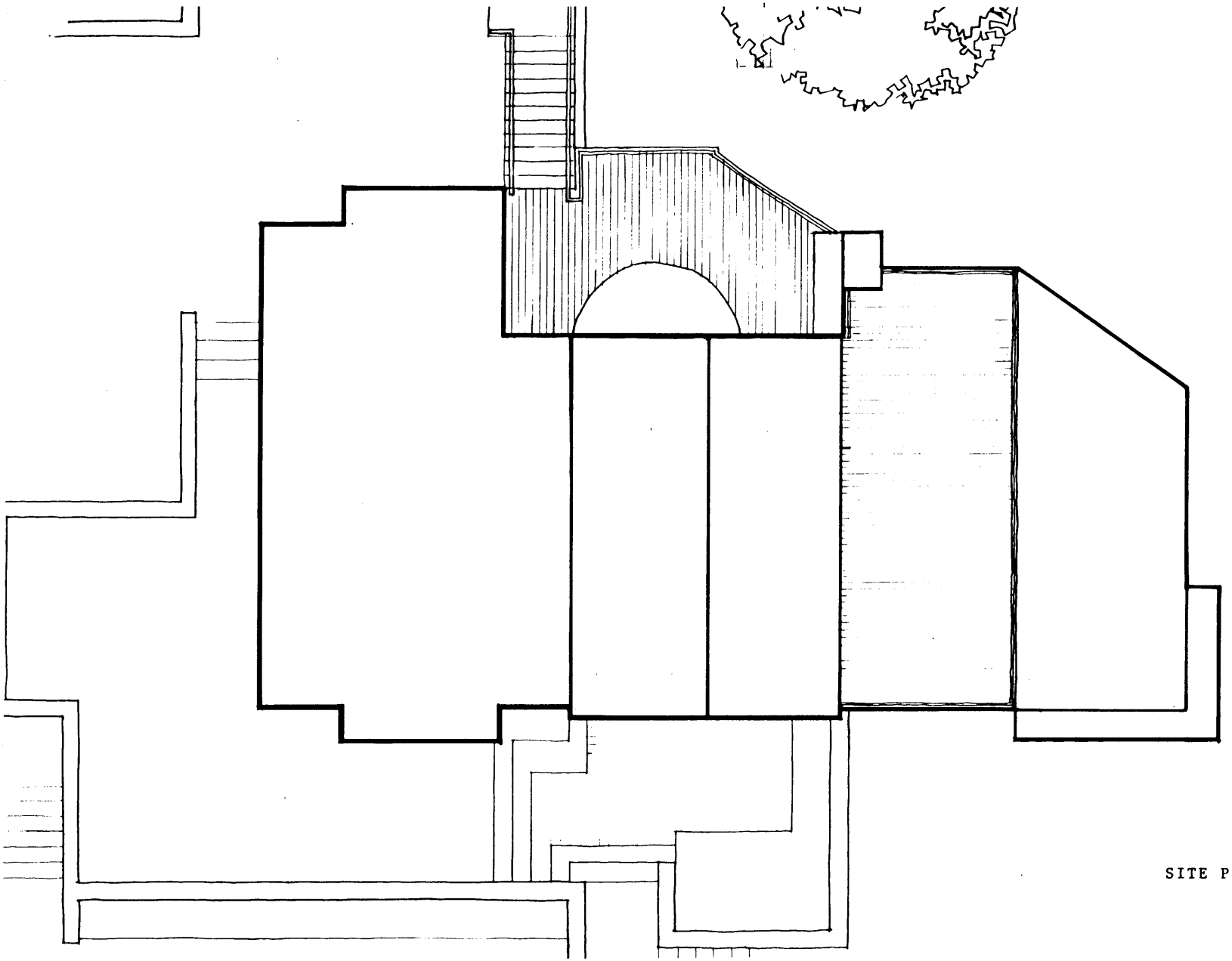
SECTION B-B

The entrance situation is similar in each house. As mentioned in Theme I, the entrances are generally oriented toward the south. In most cases this implys that one must enter down into the house because of the steep slope. Taking advantage of this situation, I have created a small, private, south facing yard space. This is a transition from the larger court space which is shared by the cluster. It allows for less of a distinction between inside and outside without loss of privacy. There has been

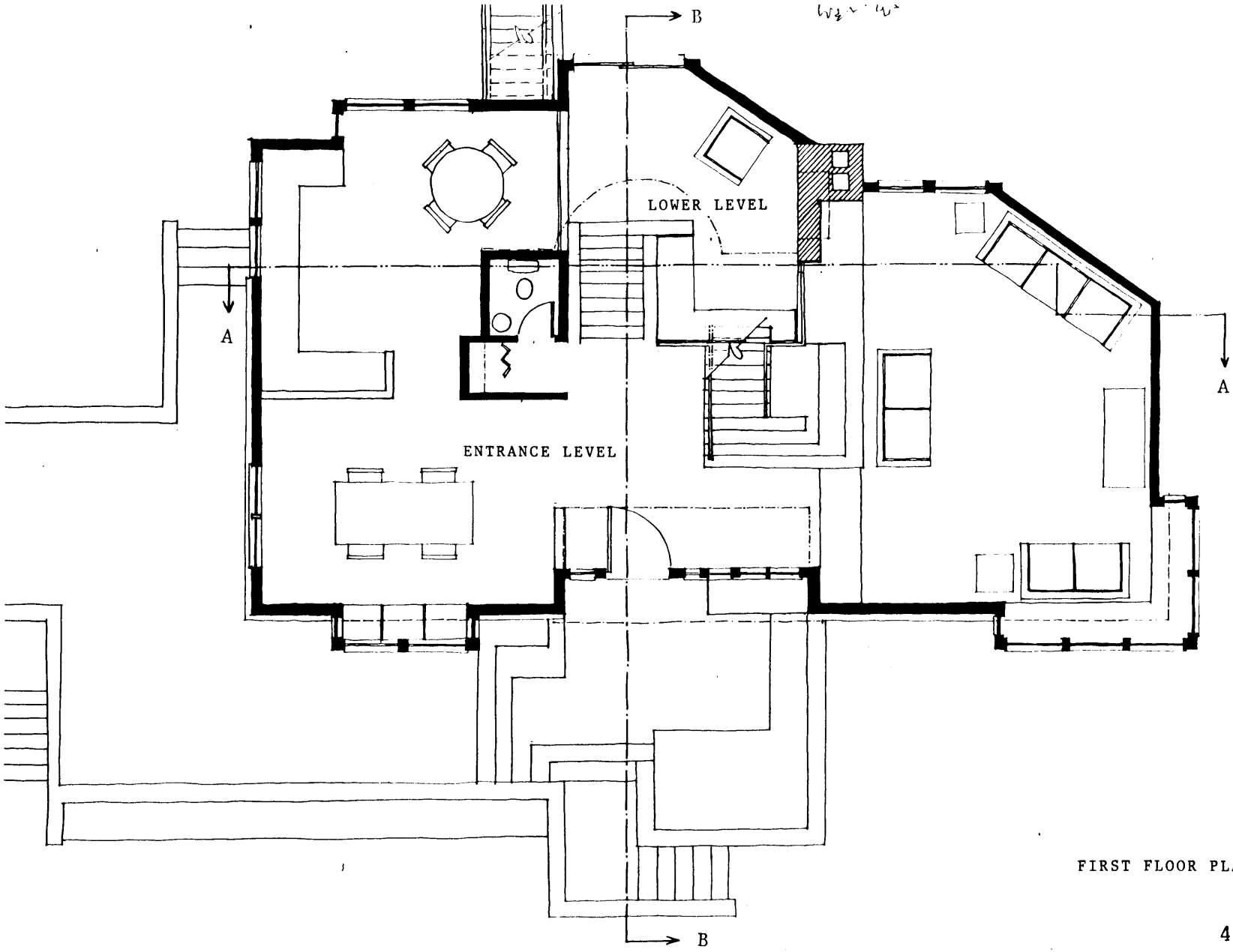
an attempt made to strengthen the feeling of transparency by permitting one to view the landscape beyond the house before entering or immediately after entrance to the house.

The last design decision which was carried throughout the entire cluster is that which controls the outward form, or silohuett, of the houses. Each house can be looked at in two ways. It is a structure with an organizing tower, and it is a whole made up of several tower-like parts. Because of the site's steepness, each house has grown from several levels. Those levels, as well as ones allowed to form at the top, are designed to read as once separate entities which have grown a whole made of smaller scaled pieces which respond to the intimate size of the site.

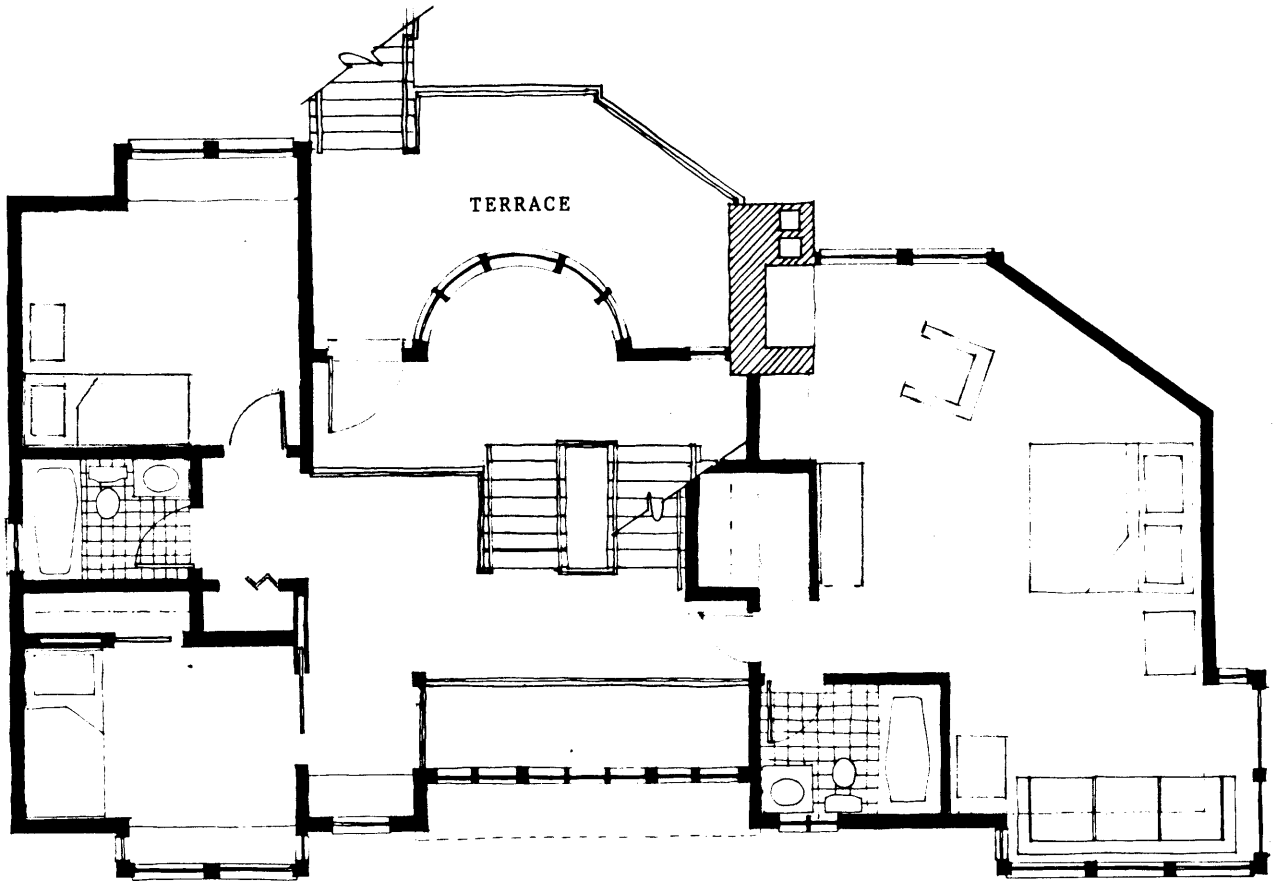
House Design Drawings



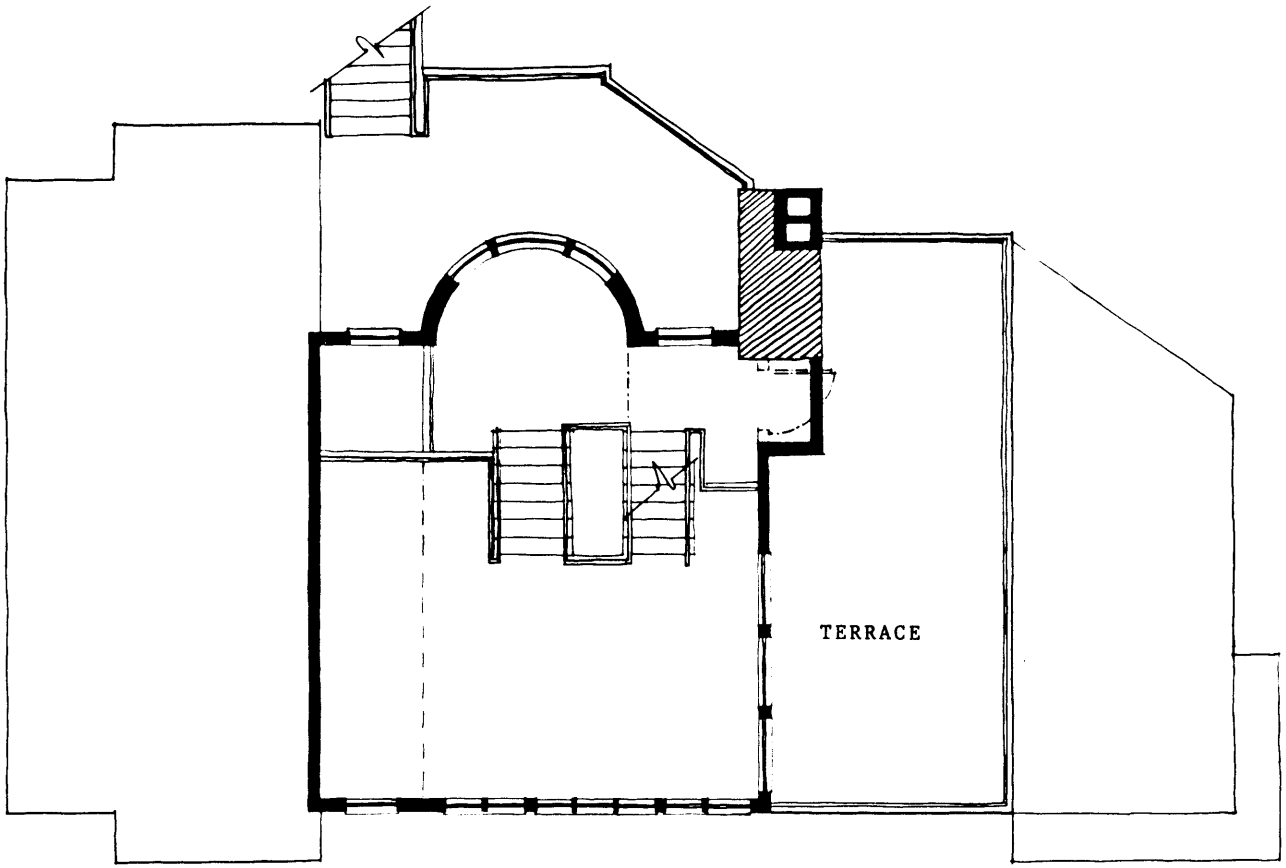
SITE PLAN



FIRST FLOOR PLAN



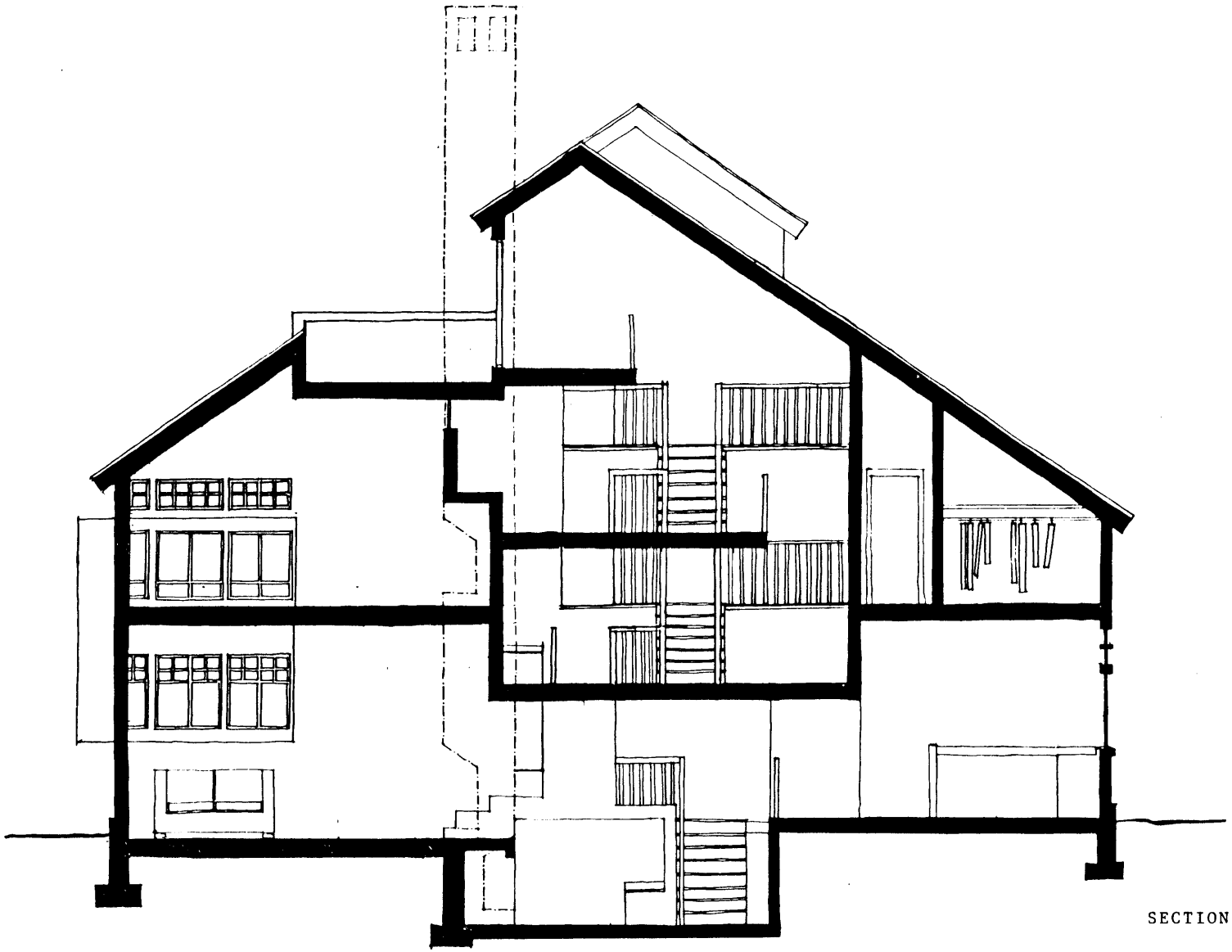
SECOND LEVEL



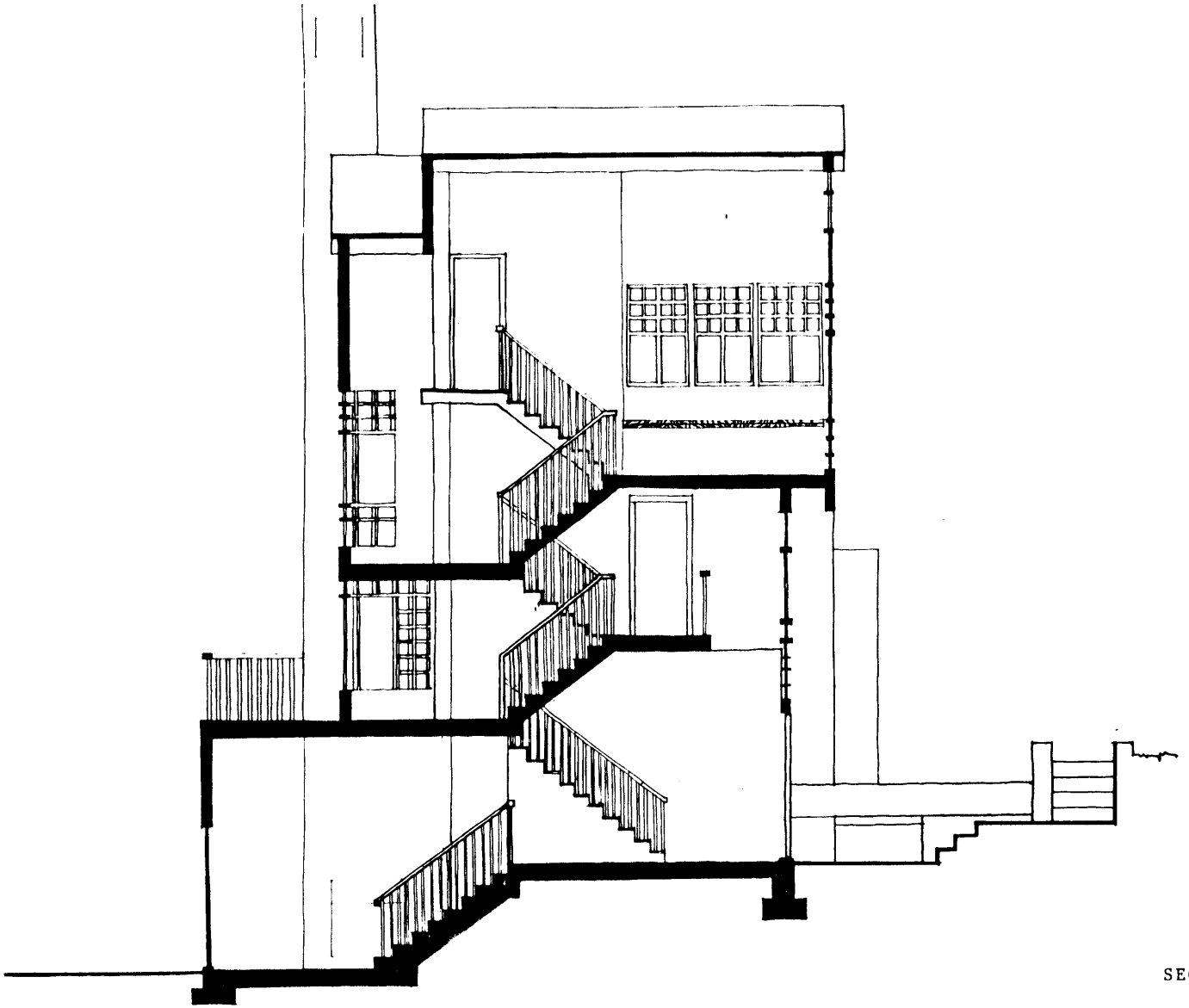
TOWER LEVEL

NORTH ELEVATION

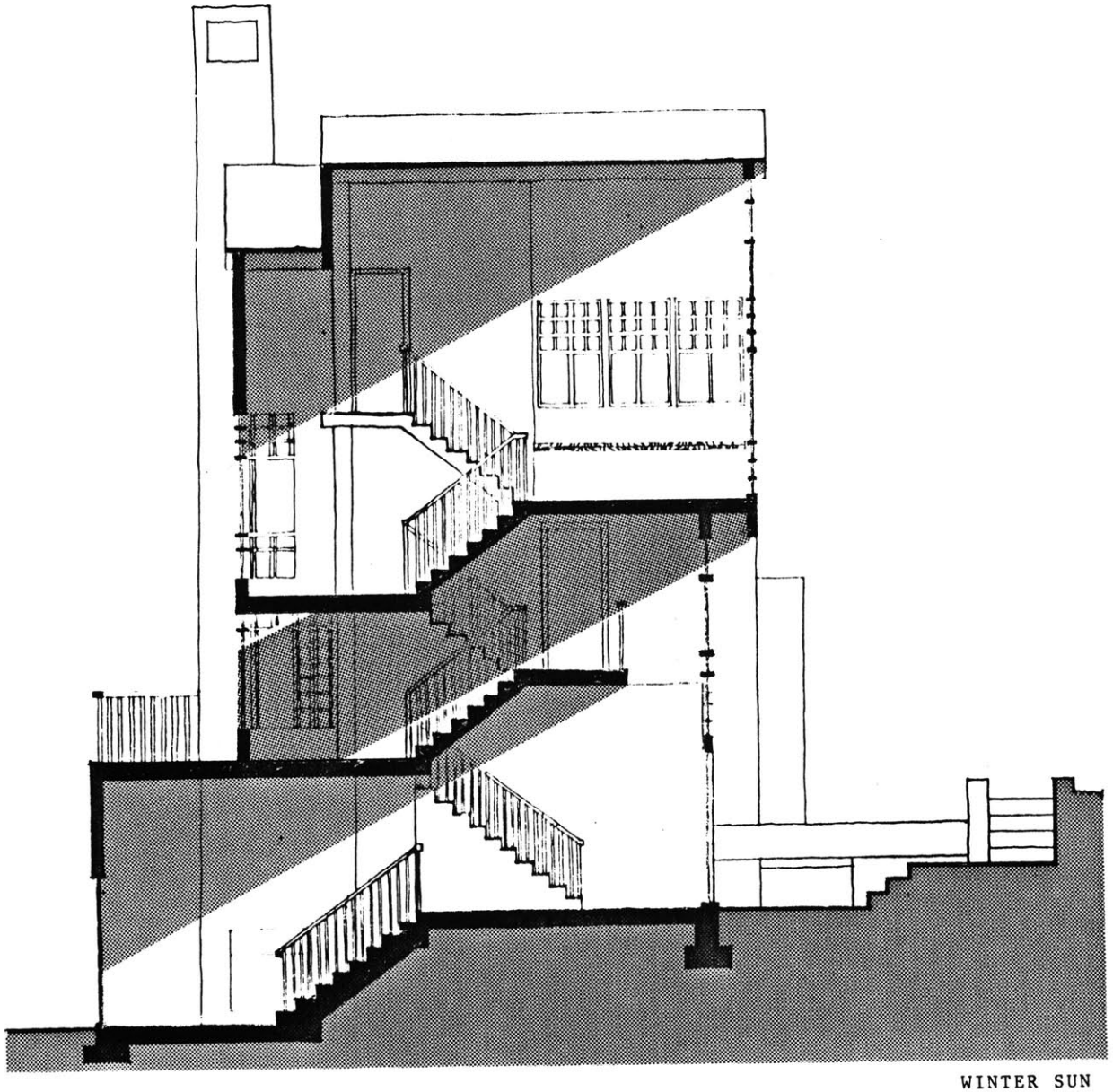
SOUTH ELEVATION



SECTION A-A



SECTION B-B



WINTER SUN

made stronger their continuity of use within the project. The project is unified, both practically and intellectually, as a result of its historical references.

Conclusion

There are many more aspects of this housing design project which could be isolated for their reference to the tower and its medieval setting. There are, most likely, more opportunities for transformations which were missed or disregarded in the design process. It is clear, however, that the historical focus was a major aid in the formation of ideas.

A great quantity of material was filtered through in search of information which was related to the site and which suggested a working concept. The process of recording my thoughts and organizing them in terms of themes, has

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